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ΦΥΣΙΟΛΟΓΙΑ:

OR, THE

DOCTRINE OF NATURE,

COMPREHENDED IN THE

ORIGIN AND PROGRESSION

OF

HUMAN LIFE;

THE

VITAL AND ANIMAL FUNCTIONS;

DISEASES OF BODY AND MIND;

AND

Remedies Prophylactic and Therapeutic.

By THOMAS FREWEN, M.D.

Of LEWES, in SUSSEX.

Nunquam aliud Natura, aliud Sapientia dicit.

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L O N D O N,

Printed for J. BEW, in Pater-Noster-Row;
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MDCCLXXX.



ERRATA.

Page V. line last, read philosophanti.

VI.	5	PETRARCHA. N. B. This page is printed erroneously vii.
138	9	origin.
179	4	stomach.
144	13	cacheetic.
198	7	Potus.
203	3	repeated.
241	<i>title</i>	TREMOR.
	7	thrice.
272	2	at the end, re-.
386	15	gestions.
402	15	too much.
419	<i>last but one,</i>	Corr.
448	20	keep off.

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EPIS-

EPISTOLA AUTHORIS

A D

A M I C O S S U O S

In Re medicâ honorandos.

PHILOSOPHERS have announced the Animal Body to be a mere machine, in which Nature hath a universal superintendency, demonstrating all actions and motions to be the natural consequences of particular causes; some of which have been discovered by the observations of learned men, and are now become subjects of geometrical demonstration: that others still remain undiscovered, is not, that of their own natures they are less capable of demonstration, but that the data are insufficient to explain the phænomena.

Indeed, it is evident, that the Doctrine of Nature is not attainable by Systems of Natural Philosophy; which are read more to obtain the hypotheses, than with hopes to gain a comprehensive, scientific, and satisfactory knowledge:

B

ledge : so that the mind casts and turns itself from one thing to another, to bring all the ends of a long and various hypothesis together ; and see how one part coheres with another, in order to clear off appearing contrarieties, and make the whole comprehensive and satisfactory to the mind.

Dr. Boerhaave found a nearer way to the discovery of the arcana of Nature, by experiments, which proved his art to be the key of Nature ; by means of which, as a branch of physics, he became best acquainted with all manner of natural bodies, but more particularly with fire, the most universal of them all : and upon this principle, his doctrines, both experimental and argumentative, are drawn into conclusion, by reasoning upon them with geometrical exactness. By his experiments we are taught to discover the actions of one body upon another, and the effects produced by those actions ; that is, in other words, the powers and laws of Nature.

We are given to understand, that from the motion of the fluids proceeds life ; and from the free circulation of them, health : so soon as the
fluids

fluids cease to move, the body dies ; restore the circulation, and life returns. A person falling into a perfect swoon, for a time seems absolutely dead ; yet all the solids of the body are in a natural state, and the fluids also, circulation excepted : agitate but the nervous system, so as to convey what shall renew its systole to the heart, and immediately the warmth, colour, motion, and cogitation, are restored, and every function of life is renewed. An animal drowned, also, may likewise be restored to life, while the lungs remain entire and uncorrupted, by a strong inflation of air into them, and expression of it out again ; repeating the operation for a while.

Many well-attested instances of the surprising recoveries of drowned persons, are known to be upon record ; and precepts grounded on principles that fall under our senses, or are proved by experiments, deserve the greatest praise : for the art of medicine, from such reasoning, receives more benefits than men were formerly acquainted with.

Plain simplicity is the surest test of truth ; and whoever considers the great uniformity that is to

be observed in the several parts of a human body, and the strict analogy that is kept up between the greater and lesser parts, will find that the immediate causes of diseases are more simple than they are generally supposed to be ; and that the great difference arises more from the situation of the part affected, than from the morbid cause itself. How easy is it to account for an inflammation, or boil, on any of the extreme parts of the body, and how few symptoms are thence produced ? But how greatly is the scene altered, if the same immediate cause produces an inflammation on the pleura, or lungs ? and that its termination into an abscess, which gives relief in the former case, is, in the latter, attended with a various train of symptoms, and oftentimes the death of the patient ? The same cause which produces a bleeding at the nose, may likewise be productive of a fatal apoplexy ; and the only difference is, that in one the blood from the ruptured vessel has a free discharge, whereas in the other it lodges, and presses the nervous tubes, whose free and open action is necessary to continue life.

In pursuing the Doctrine of Nature, comprehended

prehended in the cause and cure of distempers, we ought to assume nothing contrary to our senses; that our theories may be founded upon principles the most simple and prevailing, and not be subject to the precarious fate of hypotheses.

When a just method is laid down, every thing flows easily and distinctly from it; and a few plain medicines are generally found to be sufficient for the purpose they are intended.

This assertion is not only agreeable to the strictest reason, but is confirmed by experience; since the most happy practitioners have been always remarkable for the simplicity of their medicines.

An affected obscurity has been often mistaken for deep learning in physic; and that hypothesis has gained the greatest applause which was most curiously wrought: but, as its beauty consisted in the elaborate imitation of the nice texture of a cobweb, so its duration was equally uncertain and precarious.

“ Nihil sapientiæ odiosius acumine nimio;

“ nihil verè phisophanti molestius, quam

“ sophista. Ideo invidam *Palladi* finx-
 “ erunt veteres araneam, cujus subtile
 “ opus ac tenues telæ sunt, sed & fra-
 “ giles nullique usui.”

PETRACHA *de Remediis utriusque Fortunæ*,
Lib. i. Dialog. 7.

AMICI!

“ Estote, ergo, et astuti, ut serpentes; et
 “ sinceri, ut columbæ.”

Ex SEBASTIANI CASTELLIONIS Interpretatione.

Paginis his sequentibus, Viri honorandi,
 si quid errati accidet, condonetis velim;
 quoniam, ut optimè docet vates VENUSINUS,
Art. Poet. v. 351,

“ Non ego paucis

“ Offendar maculis, quas aut incuria fudit,

“ Aut humana parum cavit natura. —

“ Et opere in longo fas est obrepere somnum.”

Quo si me dignabimini et favore, nihil am-
 plius orem, qui sum, Viri dilectissimi,

SERVULUS VESTER HUMILLIMUS.



ΠΡΟΛΕΓΟΜΕΝΑ.

HIPPOCRATES grounded the science of Medicine upon invariable philosophical principles, and established it as the noblest of all arts; and his experience gained him reputation throughout the world. By his incessant attention, singular penetration, and indefatigable application, he made a larger collection of signs and symptoms of diseases, than, perhaps, all other writers. His narrations were simple, perspicuous, methodical, accurate, modest, frank, and faithful: nice was his distinction between the appearances arising from the disease itself, and from the errors committed by the physician, attendants, or in the regimen. His observations were as minute as important; whence he became so excellent, both in distinguishing cases, and foretelling their events. Nor was his sagacity in discovering remedies, greater than his benevolence in communicating them. He was neither precipitate in the application, nor in determining the effects of them; neither concealed his bad, nor boasted of his good success. The medicines he used were few, but efficacious; being more soli-

B 4

citous

citous about the just and seasonable application of those that were necessary, than about variety : and his preference of experienced, to other medicaments, was as constant as his regard to evident, rather than occult causes ; by considering the course and duration of diseases, observing the days when they raged or remitted ; controuling or forwarding the determination of morbid matter, digesting its crudities, accompanying what was matured through the passages indicated by the distemper, directing the separation, and promoting the expulsion. Lastly, being rather an imitator and assistant, than, by rash attempts, a disturber of Nature, he truly saved all who recovered, without being the executioner of those that miscarried under his care. By attending strictly to what proved prejudicial or serviceable, he became acquainted with remedies ; and, by contemplating the time and manner in which Nature alone puts the enemy to flight, he established rules for the use of those remedies, which, after almost infinite experience, he ventured to recommend, but not without those cautions which might deter persons unskilled in the art from the practice of it. Who, before Hippocrates, maintained the seasons to be the cause of those diseases that usually reign in them ? that the particular variations of weather produced particular diseases ?

diseases? and that endemic disorders, or those peculiar to each place, were to be accounted for from the situation of it, and the manner of living to which its inhabitants were accustomed? After making the best use of the records that descended to him, being the nineteenth physician, by uninterrupted succession, in his family, and having improved himself by travelling into various countries, he taught a great number of scholars, many of whom afterwards, situated in different parts of the world, informed him of whatever occurred worthy of his notice: with these qualifications and assistances he compiled his almost consummate collection of observations. By means of this experimental doctrine, physicians, in most cases, were seldom at a loss for proper remedies.

Dr. Sydenham strictly adhered to the doctrines of Hippocrates; and, in treating acute distempers, assuaged the impetus, raised the languid, supported the strength by regimen; and, when the fever was violent, made discharges, blunted acrimony, diluted too thick fluids, and condensed too thin; constricted lax vessels, and relaxed those too rigid; made revulsion to parts where the danger was less, and administered occasionally paretics; in languors used stimulating attenuants. Water, wine, vinegar, barley, nitre, honey, rhubarb, opium,

opium, fire, and the lancet, answered these purposes.

In chronical cafes, mineral waters, falts, artificial fudorifics, soap, mercury, steel, a few vegetables, and proper exercifes, fupplied all the intentions.

This was the ftate of phyfic, as far as obfervation and experience could lead the way, till Boerhaave difcovered the myfterious reffes of Nature, by his experiments; and demonftrated by what laws the motions of a human body are performed, and the natural ftate and alterations to which it is liable from what it receives, whether as food, phyfic, or poison, whereby it is determined either to health or ficknefs.

He fhews us, that all the folids of which a human body is compofed, are either mere earth, or fome earthy fubftance held together by a certain attractive force; or a particular oil; for every folid part, when urged by fire, leaves nothing but earth and oil behind it: and hence we learn why the veffels of our bodies are not as fpirit, oil, or falt, would be, fet loofe, and rendered volatile, either by the heat which they naturally fuftain, or the other powers that continually act upon them; namely, becaufe they are compofed of
an

an earth that is not to be changed by any substance or operation in Nature. Again, we are informed of what kind of liquor the blood is, of what parts it consists, and by what principles it acts : for it does not act solely as a fluid, flowing along its canals, according to the laws of hydraulics; but at the same time, being possessed of other active principles, as salts, spirits, oils, &c. wherein it differs from all other liquids, it exerts a force of its own. And by knowing the particular nature and qualities of these principles, a physician will nicely understand, and advantageously distinguish, between the signs of health and sickness, by the different degrees of motion and heat. He may likewise be informed of the state of the solids and fluids, from the beginning of a distemper to the end of it, and how they are alterable by heat, sufficient to render the salts of the body dissolved, and the oils thereof volatile.

The chemical Philosopher speaks to the point in putrid diseases, by examining the putrefied humours themselves in the body, and comparing them with the same humours included in proper vessels, and exposed to the same degree of heat; whereby the same effects are exhibited as are found in the body : and we are taught what must ensue upon the stagnation of blood in the body, and
what

what will be the certain effects of particular motions of that fluid, according to the particular part wherein it happens. We can certainly foretel that a strong circulation will heat the body too much, render it dry, throw off its finer parts, amass the groffer together, and render the salts and oils volatile; and, also, that the bones themselves become carious, from a putrefaction or corruption of their marrow, whereby it is rendered so sharp as to corrode their substance.

These are discoveries that were certainly unknown to the antients: for, though they understood putrid distempers, both as to their visible appearances and their effects; yet, with regard to their causes, they were utter strangers, and never distinguished between them, nor gave any rational account thereof.

All the changes observable in bodies, must be the effect of some one cause or other; but then that cause, oftentimes lying deeper than the effect, is discoverable only by means thereof.

Boerhaave represents the knowledge of Chemistry to be of infinite advantage to a Physician, in the discovery of the cause and nature of the distemper, and whether it tends to good or ill. For instance, if he should find
his

his patient hot and inflamed, his urine red, and his pulse quick and hard, he will immediately know the state of the fluids, and be aware that they tend to putrefaction. And, in this case, he observes, that the antients, and particularly Hippocrates and Galen, would say, that the person was preyed upon by the innate heat, in conjunction with the vestal fire; and that, the radical moisture of the body being consumed, he must immediately die.

Hippocrates would, indeed, presently pronounce the sentence of death upon any one sick of an unknown distemper, wherein all the secretions were obstructed; whilst the skin appeared squalid, dry, and parched: but Boerhaave would go deeper into the nature of the disorder, and shew you, that, the aqueous and spirituous parts of the blood being here wanting, the salts, which are now rendered more sharp and corrosive, are brought, by the law of circulation, to the fine tender vessels of the cerebrum and cerebellum, which they either wound and tear, or else prevent the secretion of the animal and vital spirits therein, whence death must necessarily ensue;—which is saying something that satisfies the mind, and rationally accounts for the thing.

Again,

Again, Hippocrates tells us, if the urine be of a deep-red colour, smells ill, and appears frothy, the life of the patient is in danger : but our chemical Physician demonstrates, that oil, or sulphur, is the cause of colours in liquors; that this oil gives a deeper colour, the finer it is broke; and that the more 'tis ground and shook together, the more corrosive it grows;—which, in the present case, is the true physical cause of the effect. And he informs us, likewise, of the constitution of the patient: that he, whose urine is always red, ought to suspect a putrefaction of his juices, or a dangerous tendency thereto; as he, who always makes a pale and limpid water, may be thence known to be of a weak constitution: and, when the sweat, as well as the urine of a person, grows fetid, that its salts are too much attenuated, and the oils too much exalted. And we are given to understand, also, that, without this chemical knowledge, we could not understand why the chyle sometimes turns acid in the stomach, or *primæ viæ*; nor, perhaps, how animal digestion is performed.

Dr. Boerhaave, beyond all doubt, founded the theory of medicine upon the safest and surest principles; for, having the key of Nature

ture for his clue, he could discover her mysterious recesses by his own art, and overcome preternatural conflicts with great certainty, without trying experiments on the patient.

His account of bile and of bilious distempers, of the hepatitis, various kinds of jaundice, of melancholy, and hypochondriacal disorders, confessedly surpasses what was extant before on those subjects.

The description and cure of the whole tribe of inflammatory diseases delivered by him, will probably remain unalterable as human nature.

Under the head of chronical diseases, the rabies canina is handled in a most masterly manner; although he was ignorant of the many applauded specifics for the cure of that distemper. He attended several in the hydrophobia to their last moments; and his description of their agonies was so very pathetic, that, it was said, several of his audience could not overcome their passions, without shedding tears.

He was exceedingly circumstantial in his examinations of the sick, being too conscientious

scientious to rely upon hasty conjectures, for the gratification of vanity, or through indifference, to save time and trouble of a thorough enquiry, when a good degree of probability might result from it.

In chronical cases, he usually inspected the internal parts of the eye-lids, the carunculæ lachrymales, and the gums; the blood-vessels appearing here most naked: sometimes he required the patient to try how he was affected by various positions of the body, to hold his breath long, and exert his voice as loud as he could:—according to which observations, he partly judged of the plentitude of the vessels, of the progress of obstructions of the glands, of scorbutic taints in the fluids, and of the affections of the chest, and its contents, the grand organ of sanguification.

What method of treating the gout has been found so safe and serviceable, as that recommended by him? Who has so accurately described, and distinguished, the different kinds of scurvy, requiring a cure as different and opposite to each other, as any the most contrary maladies? Who had ever before demonstrated the heat of an animal body to proceed, altogether, from attrition,
between

between the fluids and their vessels? or observed that air, whilst mixed with our circulating fluids, loses the elastic property of external air, having its particles so separated as to prevent the exertion of their mutual repellent force, which they regain when collected, upon stagnation of the fluids. The surprizing phenomena of heated air, in which an animal dies in a few minutes, of a malignant, almost to a pestilential fever, were discovered by experiments made at his request, and according to his direction.

His chirurgical doctrines on obstruction and inflammation, are deservedly counted originals; and those concerning a scirrhus, cancer, and the diseases of the bones, afford many important notices which escaped other authors. Who, before him, observed the *membrana adiposa et cellulosa* to be the seat of all ulcers, sinuous and fistulous? In short, his whole system of surgery is not less accurate than compendious.

As a proof of his sagacity, the following case was given me by a gentleman who attended his lectures, and took his degree of Doctor in physick at Leyden. Its authenticity made it acceptable.

A servant of the Doctor's, during his residence in Leyden, had been ill nine days of a malignant fever, attended with a delirium, tremors, faltering in his speech, fluttering pulse, and a coldness of the extremities. An account of the case, with some of the patient's blood and urine, was dispatched to Professor Boerhaave; from whom the following answer was returned, in a letter to the Doctor.

“ From the observations noticed on the
“ present symptoms, and the experiments I
“ have made on the blood and urine, I judge
“ the life of this person to be in extreme
“ danger; and that, unless the circulation
“ can be encouraged in a freer manner to
“ the lower extremities, and nature be as-
“ sisted to bring on a critical change, putre-
“ faction will ensue.

“ Let the patient be set up to his knees
“ in water made sufficiently warm; and in
“ the mean time a warm bath is to be pre-
“ pared, to immerge his whole body. He
“ must remain in it long enough for the body
“ and extremities to become of an equal
“ warmth. He must be taken out with
“ much caution, that the cold air may not
“ be injurious; and put immediately into a
“ well-



“ well-aired bed, having a sufficiency of
 “ light warm covering laid over him.

“ A lump of sugar, with some drops of
 “ nitrous spirit dulcified, is to be held in his
 “ mouth, and permitted to dissolve gradu-
 “ ally, while he continues in the bath, and
 “ to be repeated every hour or two after-
 “ wards: and a drink prepared of water
 “ acidulated with juice of lemon, and
 “ sweetened with sugar, and an eighth part
 “ of Rhenish wine added, is to be given
 “ him, at first, by spoonfuls, made pretty
 “ warm; and when he can drink a larger
 “ quantity at once, it may be taken ad
 “ libitum.


“ Apply old yeast, mixed with vinegar,
 “ warm, to the soles of his feet and ancles;
 “ and let it remain twelve hours, or till it
 “ raises a blistering of the epidermis on the
 “ parts.

“ Proper food, to support the strength of
 “ the patient, is jelly of bread, with a small
 “ proportion of Rhenish wine, and it may
 “ be a little sweetened with sugar. It is to
 “ be given warm by spoonfuls, every half
 “ hour, or hour at farthest.”

In consequence of this good advice, by the performance of these means, a plentiful sweating ensued, which was productive of a critical change, according to the premonition of our most celebrated master of medicine; insomuch that, the excretions being duly attended to, with the use of the bark afterwards, this patient was, with the grateful acknowledgments of our worthy friend, restored to perfect health.



Φ Υ Σ Ι Ο Λ Ο Γ Ι Α.



*The Progress of the Human Nature,
considered from its first Principles.*

THE origin of man, in the rudiments of generation, is comprehended as a substance too small to be divisible. This principle has been compared to the shooting-forth of a plant from the seed, and is connected by a *funiculus* to its *placenta* adhering to the *uterus*; whence it receives nutrition from the mother, even as plants do from the earth.

After forty days, this embryo commences a foetus, resembling a human body in all its parts ; improving in bulk and perfection, by the same means of nutrition, until the time of gestation is accomplished : when, being separated from the mother, the air intrudes, the act of inspiration begins, the lungs are put in motion, and the infant exercises a natural life of its own.

After the act of respiration is performed, by means whereof the natural powers of the body are put in motion, to execute their various functions, a black tenacious matter, like opium (from thence called *meconium*), is purged off from the bowels ; and the urine, likewise, is evacuated by the urethra, as in adults.

A vital faculty exists in the muscular force of the heart, by which the blood is propelled, through the lungs, to all parts of the body : the canals are become the containing parts of a living body, and the fluids are the parts contained ; and both the one, and the other, are essential to the same body, and united in one common life. Hence there arises a
natural

natural power, from the circulation of the blood, manifest in all the secretions and excretions.

The infant now receives the aliments, by suction, at the mouth, till it becomes capable of exercising the faculties of mastication, concoction, &c. and taking other kind of food for nutrition, which hath the beginning of its digestion from saliva, and its conclusion from a ferment in the stomach and *duodenum*; where it is changed into chyle, and liquified by its mixture with two other dissolvents, viz. the pancreatic juice, and the bile; which divide and subtilize it; that those parts which are left too gross for sanguification, may be protruded by the intestines. The chyle is taken up by the lacteals, and conveyed into the glands; whence it is carried to the heart by the thoracic duct, and the subclavian vein, wherein it begins to be mixed with the blood, and, by circulation, becomes assimilated thereto.

There is a power, also, exercised in the brain, by the secretion of a refined fluid from the blood into the nerves, which is

called the animal spirits: by means whereof, the functions of the mind, imagination, ratiocination, and memory, perform their exercises.

These things premised, it will be easily granted that the human nature is compounded of both body and mind; and that the elements of life must consist in a constant flux and reflux of blood, nervous juice, and air, to and from those principal organs, by means whereof both the vital and animal functions are performed. Indeed, health of body and mind cannot be perfect without the constant performances of these offices: for the mind is subject to diseases, as well as the body; and their intercourse is such, that they are liable to be affected, also, from the distempers of one another.

Ill concoctions and flatulencies are the common causes of indigestion; and the effects thereof are twitchings and vellications of the bowels; which might quickly be remedied by medicine: but when the cure is neglected, unless Nature acts the kind part of the physician, the consequences will ensue;

sue; the nervous fibres of the brain will be irritated, the animal spirits disturbed, and the mind affected with dread and horror. Hence the bodily disease becomes, at last, fixed upon the mind, and grows much more difficult of cure; for the mind will be continually harassed, till the cause of the evil is removed.

When the mind is kept too much upon the stretch, by intense thought, or study, it is usually apt to render the body in a confictive state; so that the remedy is a proper opening of the body, both by medicine and diet: or, when the mind is too much relaxed, like the body also, it requires a cordial support, and must be relieved by chearful society, moderate exercise, and rest.

Rich foods, and high sauces, certainly corrupt the mind, as well as the body; and breed vicious humours in both: and, indeed, it is evident to our senses, that an over-dose of spirituous, or fermented liquor, occasions madness and distraction: and, also, that a surfeit of strong foods will so sink, depress, and disable the faculties of both body and
mind,

mind, as to incur an habitual melancholy. Now, either of these courses continued in, will habituate these two distempers, madness, and melancholy, into their own habitual natures. Hence we may reasonably judge, that, as all distempers are cured by their contraries, plain, moderate food, and unfermented liquors, will not only prevent, but cure these two kinds of distempers.

A spare diet is a sovereign remedy against all diseases arising from repletion; and it is founded on this principle, that Nature ought not to be busied and distracted in the concocting of food, but left wholly to her work of digesting and expelling morbid matter.

Most of the chronical diseases, the infirmities of old age, and the short lives of *Englishmen*, are owing to repletion; and may be either cured, prevented, or remedied, by abstinence.

Pleasure, and pain, seem to be the two great engines in Nature's hand; whereby we are directed to consult our own preservation, and to avoid our ruin. To things that may
contribute

contribute to the one, as food, and venery, she has annexed pleasure; and to those that may conduce to the other, as hunger, and diseases, pain: she durst not leave it to our discretion, whether we would preserve, and propagate the species, or not; but, as it were, constrains us to both. Were there no pleasure in eating, nor pain in hunger, what numbers would be starved, through negligence, forgetfulness, or slothfulness? What is it that induces people to the office of generation, but pleasure? Without this, the world had scarce subsisted to this time.

Among the multiplicity of things to be done, and to be avoided, for the preservation of animal life; how should we have distinguished between one and the other, but for the sensation of pleasure and pain? These are not only spurs to urge us on, but also guides to direct us whither we are to go. Wherever Nature has fixed a pleasure, we may take it for granted, she there enjoins a duty; and something is to be done, either for the individual, or for the species.

Hence

Hence it is that our pleasures vary at different stages of life: the pleasures of a child, a youth, a grown man, an old man, all tending to those particular things required of Nature in that particular state of life, either for the preservation, simply; or, jointly, for that and propagation.

Hence, from the different constitutions of the body at different ages, it were easy to account for all the particular tastes and pleasures thereof: not by deducing the pleasures, mechanically, from the disposition of the organs in that state; but by considering what is necessary for the perfection and well-being of the individual in that state; and what it is to contribute to that of the species.—In a child, e. gr. mere preservation, in the present case, is not enough; it must likewise grow: to bring this to pass, Nature has made the returns of hunger more frequent as well as more acute, and the pleasures of feeding more exquisite. And that the excess of aliment, in proportion to the bulk of the body, may be dispensed withal, she has made one of the great pleasures of the state to consist in

in a series of sportive exercises, by means whereof the parts of the body come to be opened and expanded, and arrive to maturity. This done, the pleasures that conduced thereto, disappear; and others, suited to the new state, succeed.

All animal bodies, by the actions inseparable from life, undergo a continual change. In length of time, the smallest fibres become rigid; the minute vessels grow into solid fibres, no longer pervious to the fluids; ~~the~~ greater vessels grow hard, and narrow, and every-thing becomes contracted, closed, and bound up; whence the dryness, immobility, and extenuation observed in old-age. By such means, the offices of the minuter vessels are destroyed; and the humours stagnate, harden, and at length coalesce with the solids. Thus are the subtlest fluids in the body intercepted, and lost; the concoction weakened; and the reparation prevented: only the coarser juices continue to run slowly through the greater vessels, to the preservation of life, after many of the animal functions are destroyed. This is the course of Nature, and
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in the process of these changes, death itself becomes inevitable, as the necessary consequence of life. But it is rare that life is thus long protracted, or that death succeeds merely from the decays and impairments of old-age : diseases, a long and horrid train, usually cut the work short.

It has been generally understood, that a man may be reckoned dead, when he no longer breathes, and his heart and arteries have left off circulation and pulsation. Even *Lancisi*, the best author on this subject, says, that without a small degree of respiration, and some little motion and trembling of the heart, there is no life. In consequence of this system, the general practice is, that, as soon as these symptoms of life are gone, all hopes and endeavours to maintain the small remains thereof, are laid aside. But Dr. *Stephenson* does not admit of this doctrine, being of opinion, that, after the motion of the heart, arteries, and lungs, ceases, there often remains a small degree of vital principle, deserving attention. After a full stop of all those organic motions, on which life is said

to depend, the juices may retain so much of the animal process, as frequently serves to keep up warmth for a long time, which, with proper cherishing, might perhaps restore life entirely. Every age and country afford instances of surprizing recoveries after lying long for dead. From the number of these, preserved by lucky accidents, we may conclude, that a far greater number might have been preserved, by timely pains and skill.

His theory is, that the cause of animal heat, or the intestine motion, which has been going on prosperously, while the progressive motion of the fluids in the vessels continued, is now checked, yet still proceeds in a lower manner, perhaps like the beginning of fermentation, or putrefaction. By this degree of the animal process, the mass of fluids, particularly in the great reservoir of the venous blood, the heart, rarifying, pressing every way, and being resisted by the valves, swells so as to fill the flaccid right ventricle of the heart, which had been some time empty ; and thus stimulating its fibres, which
were

were at rest, sets them again in motion : as we see the heart, after being taken out of the body, by having warm water thrown on it, beats afresh, though it has been some time motionless. The right auricle being thus filled, and stimulated, contracts, and empties itself into the pulmonary artery, whereby the circulation begins where it left off, and life is restored, if the organs and juices are in a fit disposition for it; as perhaps they are much oftener than it is imagined.

From hence it seems, that death does not inevitably attend an entire organic rest of what we call the solids of the body; nay, that one cannot be called dead, till the energy of the blood is far gone; that, though assisted by all possible means, it can never be able to fill, and stimulate into contraction, the right *sinus venosus*, and auricle of the heart.

The ingenious author hopes, from this theory, that one, who, from all the above mentioned motions ceasing, may with propriety be called dead, may recover and be properly said to come to life again.

Much

Much of the terror of death consists in the pangs, and convulsions, wherewith the agony seems attended ; though we have reason to believe, that the pain, in such cases, is, ordinarily, not extremely acute : a course of pain, and sickness, having usually stupefied, and indisposed the nerves for any quick sensation. However, various means have been thought of, for mitigating the agony of death. Lord Bacon considers this as part of the province of a physician : and that, not only when such a mitigation may tend to a recovery, but also, when, there being no further hope, it can only tend to make the passage out of life more calm and easy ; since complacency in death, which Augustus so much desired, is no small part of happiness *. Physicians, when a patient is desperate, make it a point of conscience to give him over, as if it were enough to shew their skill by such a prognostic, when they ought rather to be en-

* Augustus, quoties audisset cito ac nullo cruciatu defunctum quempiam, sibi et suis *εὐθανασίαν* similem (hoc enim et verbo uti solebat) precabatur.

SUET. AUG. c. 99.

deavouring to make him depart with more ease and tranquillity. Accordingly, the noble author ranks *Euthanasia*, or the art of dying easily, among the desiderata of science.

This was a prevailing sentiment of a worthy physician, with whom I had a very great intimacy ; who, at near eighty years of age, during a long confinement with a severe fit of the gout, said, that his most earnest desire, and the very best wish his friends could bestow upon him, was, *Euthanasia*.

Among some MSS. of this gentleman, I met with an account of the remarkable recovery of a young gentlewoman, his patient, after she had been given over by two other physicians. He relates, that he saw the patient at six o'clock in the evening, after her physicians had, four or five hours before, made their departure, with this peremptory prognostic, That she could not live out the night. He found her all over convulsed, in a languid sweat, with a most pertinacious hiccough, pulse intermitting, insensible, and speechless. The mother of this patient was so shocked with the agony her daughter suffered,

ferred, that she prayed the Doctor would think of some method to quiet this violent agitation, in hopes, at least, that it might prove a means of rendering the pangs of death more tolerable. The Doctor asked for some liquid *laudanum*, intending to wet the patient's lips and the parts about her mouth with it; but there was none of this to be had, without sending several miles for it. However, there happened to be at hand some syrup of *meconium*, which was put into her mouth with a tea-spoon, and continued to be applied, as much as it could be, for several hours, when it was observed that the patient grew stiller, and seemed to snore for a moment or two at a time, repeatedly. This encouraged them to persevere; and, after some time, it was perceived that she made now and then a small deglutition. Still persevering, it appeared evident that the spasmodic motions grew less and less, the hic-cough less frequent, respiration easier, sleep longer, and with less snoring; and in twelve, or fourteen hours, she was observed to move her eyes a little. A small quantity of liquid was frequently attempted to be given in a tea-

spoon, and the *diacodium* continued between whiles, by which means she was kept still and quiet. The Doctor was desired to stay another night, and was happy to see his patient better the next day ; observing, that she fixed her eyes upon him, with a sensibility she had not shewn before. The Doctor left her at ten o'clock, desiring that the same method might be pursued, till she could have a nourishing clyster given, which he then directed : but the next night she had a natural evacuation by the bowels, which was succeeded also by another some hours after ; with so good an effect, that, when the Doctor made his visit the day following, he found her perfectly sensible, and come so much to her speech, that he now thought her to be in a fair way of recovery ; which, in short, was effected by lenient and aperient medicines, the bark, and a milk-diet.

The Doctor remarks on this young lady's case, after having had the best information from her mother, that it was brought on her by the violent, irritable powers, that had been adopted by two Quack Doctors, *cantharides* and

and *euphorbium*: for he declared, he could never afterwards speak of those two gentlemen that had attended this patient, under any other denomination; and adds, that he himself visited one of them in his last illness, after *cantharides* and *euphorbium* had been applied from head to foot, which had occasioned so violent a strangury, that he died of it.

De Haen gives a history of a cure, which a celebrated archiater wrought upon his own son; who, after all the means that had been used, to cure him of an iliac passion, proved ineffectual, gave him large doses of *Sydenham's* liquid *laudanum*; with this only view, that he might die with less misery: by the assistance of which, however, his vomiting stopped, the pain ceased, and he was perfectly restored to health.

It is evident, in both these cases, that the intentions were founded upon the same principle, that of procuring an easy death; without any other view whatsoever.

Animal Nature shewn by Experiments.

THE most celebrated Professor, Dr. *Boerhaave*, in order to acquire the knowledge of Animal Nature, found, for the object of his experiments, such a perfect animal fluid as could be separately collected without any heterogeneous parts; and which was certainly known to afford matter for the formation of all the parts of an animal body.

This fluid could be obtained only from the oviparous class of animals; it being no other than the white, or pellucid part of the egg, wherein the yolk appears to swim.

All the parts of a chick, as the blood, flesh, bones, &c. are formed out of the bare white of the egg: for nothing but this is consumed, during the time of the incubation of the hen; the yolk all the while remaining entire, and serving as the *placenta*, which appears to be vascular, or to consist of

of a number of vessels, to prepare the white, and make it a fit nourishment for the body of the chick. It is, therefore, an elaborate, and absolutely finished liquor, wonderfully designed by Nature to compose all the different organs of the oviparous tribe of animals: so that, in order chemically to discover the nature of animal bodies, we cannot have a more proper subject for our experiments than this liquor, which is wholly convertible into their substance, except the single point or speck thereof, which, proceeding from the male, lays the first rudiments of the fœtus, and without which no young is ever excluded.—By the examination of our senses, the white of eggs appears a viscous, mild, unactive, insipid, inodorous liquor, capable of mixing with water; but incapable of causing pain to any part of the body, even the eye itself.

His first process shews, that the white of egg is neither alkaline, nor acid.

Let fall any proportion of a known acid, as oil of vitriol, &c. though ever so strong, upon the white of an egg, contained in a

proper glafs, and it will caufe no effervescence, or ebullition therewith; and, consequently, it is no alkali.

Upon another parcel of the white, let fall any quantity of a known alkali, as oil of tartar *per deliquium*, and this, likewise, will caufe no ebullition; consequently, therefore, the white is not an acid. Nor will it manifest any signs of either, by the other known experiments allowed to distinguish acids and alkalies.

That the serum of human blood, also, is neither acid, nor alkaline, it will appear, likewise, by similar trial.

Indeed, if these animal fluids were either acid or alkaline, so far as, by the mixture of their opposites, to cause such an ebullition in animals, as would, for instance, be made, by mixing two different parcels of the liquors of our present process together, their bodies would be burst to pieces with the force.

His second process shews, that the recent white of eggs dissolves with a gentle heat, but concretes with a stronger.

Place

Place the white of a new-laid egg in a very gentle heat, scarce exceeding that of a healthy human body, and it will gradually grow thinner and thinner, till at length it totally liquefies, and becomes almost like urine. Expose also the white of another fresh egg, to twice the heat of the former, or one equal to that of boiling water, and it will immediately, without any considerable exhalation, be hardened, or concreted into a white, opake, dry, viscous, fissil mass, inodorous, insipid, and not without difficulty to be resolved again.

When a hen sits upon an egg incapable of affording a chick, the heat of her body, which is much the same with that here first made use of, gradually liquefies the internal part thereof, and turns it to a fluor, which at length becomes of a putrid nature, like digested urine; whilst, on the other hand, the same degree of heat gradually dissolves down the white of a prolific egg, into fit nourishment for the chick. But, if the heat were considerably greater, we see, by our present process, that this effect would not
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be produced ; for the white would then be concreted, and become incapable of nourishing the embryo. And, that this alteration in the consistence of the white of the egg cannot be owing to any evaporation of its humid parts, it is plain, from hence ; that the same thing would immediately happen, if the egg were plunged entire with its shell, or only the white, into boiling water.—And this is likewise the case of the serum of the blood, and other juices of the human body.

Hence we are taught, that there is a surprising difference, as to the effect, between the action of different degrees of heat upon the same animal liquor ; and no less than that of fluidity and firmness : whence it is easy to account for the good effects procured by the application of warm cataplasms or fomentations, in tumors, and other cases of surgery ; and for their bad ones, when they are applied too hot to the part. Warm fomentations may discuss and resolve the concreted, or coagulated juices ; but such as are scalding hot, may easily confirm the tumor ; or, if seated in a glandulous part,

part, turn it scirrhus; that is, into a substance that will not easily putrefy or dissolve. Water that is made a little hotter than the blood of persons in a fever, will soon thicken the serum and other animal fluids, and make them concrete. And it is certain, that a violent degree of heat is very pernicious to the human body, as occasioning grievous obstructions, or Polypus's therein; and of this we have daily instances in the blood of those who labour under any inflammatory, or hot distemper: so that their opinion is the direct contrary to truth, who assert, as some physicians do, that heat, in general, resolves and attenuates the animal juices; whereas any considerable degree thereof will certainly thicken, and make them viscid. And thus, though it be generally supposed that hot water dilutes, and thins the fluids; yet, if it be drank more than blood-warm, the truth of the assertion may justly be questioned.

If a quantity of the white of recent eggs be put into a tall glass, and, with a gentle heat, not exceeding that of a healthy man, be digested for a few days, it will gradually become more fluid and transparent, and afterwards

wards begin to smell fetid and alkaline, till, at length, it will not coagulate at the fire, but make an effervescence with acids, exactly like putrefied urine : and if it be now distilled, it first affords an alkaline volatile spirit, instead of the insipid water it would yield before digestion ; and, if the operation be continued, it will proceed, in every respect, as the distillation of digested urine.

A single grain, or even half that quantity, of this putrefied substance, being taken into the body, will, like the strongest poison, presently cause a violent nausea, vomiting, and eructations, a fever, diarrhœa, &c. as *Bellini* tells us he has experienced. “ And I myself,” says *Boerhaave*, “ have more than once seen it
“ given, without the knowledge of the person
“ who took it, and then also it had these terrible effects ; which, however, are immediately stopped by drinking any acid liquor,
“ as vinegar, the juice of lemons, &c. Even
“ the scent thereof may, by a longer digestion,
“ be made to do the same.” Having once continued the operation for the space of eight days, and then coming to handle the glass, he

he was immediately seized with a violent nausea, vertigo, horror, anorexia, &c. “And hence”, says he, “we may account for the “origin of abundance of diseases.”

Thus, for instance, it is no wonder, if the bile, by stagnating, as it sometimes does, that is, by digesting in the warm human body, receives such a change as to produce the *cholera morbus*, with the *nausea*, vomiting, and other grievous symptoms, wherewith it is sometimes attended. The salts of animal bodies, however, never become of an alkaline, or pernicious nature, but by heat, digestion, stagnation, or putrefaction, which latter is the consequence of stagnation, and never happens without it: but when once they turn volatile or alkaline, the life of the patient is then immediately in danger of a gangrene, mortification, apoplexy, or the like. And whether the plague, the symptoms whereof succeed each other so fast, be not owing to some such cause as this, is a proper subject of enquiry for physicians.

The like experiment shews, also, that the serum of the blood will putrefy by digestion
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in the same manner: and if the digestion should be long continued, as for the space of several days, the matter, or its oil, might be thereby rendered so intolerably fetid, as to make the operation dangerous; for the bare scent thereof would then be capable of much mischief, even at a distance.

Hence we learn the effects of a gentle warmth upon the blood, and see that this is a proper means to dissolve it when coagulated; and, by making it finer, to render it fit to pass the smaller canals of the body, where it would otherwise not enter at all, or cause obstructions. And this process alone will help us to account for many diseases of the human body, and the methods of cure. Thus the viscous matter, which is like leather, upon the extravasated blood of pleuritic persons, may, by gentle heat, be almost wholly resolved again into serum; whereas, if it should retain its tenacity, while it is flowing in the vessels, it would cause obstructions, and be still more condensed therein. So, likewise, in all inflammatory distempers, to keep the body moderately warm, is the way
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to thin the fluids, and hasten the crisis, or the discharge of the morbid matter, by encouraging or promoting some evacuation or other.—But when the blood comes to be extravasated, and stagnates in any part of the body, suppose in the cavity of the thorax, or abdomen, being now no longer agitated by the force of the circulation, it will first coagulate, and then soon begin to resolve, and at length putrefy, and become alkaline, sharp, and corrosive: whence, if lodged in the cavity of the thorax, it might bring on a phthisis, by fretting away the tender substance of the lungs; or cause the empyema: or, if in the abdomen, destroy the texture of the lymphatic vessels, whence they distil out their liquor, and form the ascites. And after this manner may numberless other distempers be produced.

Hence we see the great affinity there is between the white of eggs and the serum of the blood; as likewise the effects producible by fire upon the human body. And as an increased heat has the power of instantly coagulating the animal fluids, it is a present
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and effectual remedy in the bite of a mad dog, or other venomous animal, immediately to burn the part with a hot iron, applied, or rather thrust deep into the wound : for, by this means, the juices about the part being coagulated, and an eschar produced, all communication of the poison to any other vessels is stopped, and thus the cure may be readily effected ;—not that the hot iron draws out the poison, as is vulgarly imagined, but renders the parts incapable of being penetrated or affected thereby. And hence it is that the pain occasioned by burns may be lessened or taken off by fire, or a greater heat than that which made them ; for this will coagulate the juices about the part, and thereby render it less sensible of the pain. Thus a violent degree of heat, we see, destroys the parts of the body, or coagulates its juices ; whilst a less dissolves, and turns them into ichor. And the like effect will be produced by motion, attrition, or any increased velocity of the blood and juices, as well as by direct heat.

Experiments shew, also, that the serum of
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the blood, and the white of eggs, are alike coagulable with alcohol: for instance, if the serum, or blood itself be digested, though ever so long, with pure alcohol, it will not become fetid, or shew any signs of corruption; for neither will the salts turn alkaline, nor its oils putrefy,—which, indeed, is very surprizing. And this may serve to shew us what a wonderful balsamic virtue there is in alcohol, which is plainly owing to its coagulating principle: and on this account it is, that those, who are given to drink too freely of brandies or spirituous liquors, are frequently affected with polypuses, or obstructions, arising from the concretion of the blood in the larger vessels, the palpitation of the heart, the dropsy, dry crispy nerves, and other disorders of this kind, which prove generally mortal.

Hence the wonderful effects of alcohol in sphacelations and spreading gangrenes: a most remarkable instance whereof occurs in the German Transactions, where we find that a very aged woman at the Hague, having a violent gangrene, which spread from the

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middle

middle of her foot, upon half of her leg; and the physicians declining to take it off by amputation, on account of her great age and infirmity; they ordered, to stop the growing evil, the part to be frequently fomented with pure alcohol,—which proved so successful, that, to their great surprize, it not only prevented the farther spreading of the gangrene, but even embalmed the black and mortified part, dry as it was, like mummy; upon which the woman recovered, and lived for two years after, with her leg thus preserved from further alteration. And this relation may serve to shew, that gangrenes are not contagious, or of a spreading nature, but by the means of ichor, or corrupted matter, which comes in contact with the adjacent parts.

*The Solids and Fluids of Animals,
how compounded.*

IT is a clear proposition, and can admit of no doubt, that, according to the doctrine of *Boerhaave*, the bodies of all living animals are continually wasting, and repairing, in all their parts. The truth of it is evident, even in the hardest, and most solid parts of animal bodies. The nails, and hair, which being cut, soon grow again to their former length; and the teeth, and all other solid parts, wear, by frequent use; though no sensible diminution is found of their substance.

But if the solids thus constantly fly off, and recruit again; the fluids must unquestionably do so too. And, in effect, we see that animal bodies increase in every part, from the smallest physical point, till they arrive at their full growth.

Animals, therefore, must necessarily be composed of what they take in as aliment;

which, by their vital powers, is converted into their own substance.

Perhaps, also, the bodies of animals may receive part of their aliment from the air : for, as *Malpighi* has curiously observed, eggs gain in weight whilst brooded upon by the hen ; which addition of matter must either proceed from the effluvia of the hen, or from the *atmosphere*. But that it does not come from the hen is manifest, because in *Egypt* chickens are frequently hatched by the heat of an oven.

The food of all animals is either of a vegetable or animal nature.

There are two kinds of animals that differ in their food ; those which feed entirely upon vegetables, as the ox ; and those which devour the flesh of other creatures, as the lion : but man is an animal of an indifferent kind, that can support himself either with vegetables, or flesh alone.

The bodies of all animals, therefore, and even of men, consist, either mediately, or immediately, of vegetables.

The greatest part of the animals which
men

men use for food, are themselves immediately fed with nothing but vegetables, as *sheep*, *oxen*, *rabbits*, &c. But *fish*, indeed, often take down *insects*, and so do some kinds of *fowl*; but then these *insects* were either fed with vegetables, or it will come to that at the last.

Our next attempt will be to analyze that part of animals which has received the least alteration in their bodies, or but just begins to lose the vegetable, and put on the animal nature.

This part must be originally of a vegetable product that has felt the vital forces of the body, mixed with the blood, passed through the arteries and veins, and been soon separated again. And this can be no other than chyle from vegetables, turned to milk, and separated in the breasts.

The parts of all animal bodies, as well solid as fluid, may receive their nourishment and growth from milk alone.

There have been instances of those who lived upon nothing but milk: and the body of a child, at the end of some months after its birth, is little more than a composition of the

milk of the mother; the parts it brought with it into the world being changed for others supplied by the nourishment, in the same manner as the body of an ox is a composition of grafs. Thus, by the vital actions, the milk is made to pass through all the changes of the blood, *serum*, *lympa*, *nervous fluid*, or *animal spirits*, which seem to be the immediate matter of *nutrition* to all the solids.

The milk of such animals as are only fed with vegetables being drawn from the breast, and permitted to stand in a warm place, soon separates of its own accord, into a light and white kind of oil, which rises to the top, and is called *cream*; and into a thinner, aqueous, bluer, and more ponderous liquor, vulgarly called, when the *cream* is taken off, by the name of *skimmed milk*.

Milk of the several kinds of animals differs but little as to its smell, taste, and other properties; but that drawn from the breasts of women is the sweetest: the nearest to which is *asses* milk, which indeed has a saccharine sweetness, and comes almost up to the human. This is succeeded in virtue and goodness by
that

that of *mares*, which is better than that of *goats* ; yet even this exceeds that of *sheep*, as theirs does that of *cows*, which is the coarsest of all.

Neither of the two parts into which new milk spontaneously separates, is of itself either acid, alkaline, or acrimonious, to the smell or taste.

It is true, indeed, that these parts turn acid by standing for some time ; but this does not infer, that, contrary to all the evidence of our senses, they naturally contain an acid. Neither are they in the least acrimonious ; for, being let fall into the eye, they cause no manner of pain or sensation of sharpness.

From these axioms, or general truths, we may draw the following *corollaries*, which are no less certain than they. (1.) All the parts of a human body might once materially exist in the form of *milk*. (2) *Chyle*, though really a vegetable fluid, is an imperfect milk, or the rudiments and basis thereof ; and exhibits many of the *phenomena* afforded by vegetables, particularly in its flatulency, the effervescence it occasions, &c. (3.) Milk is a

kind of emulsion, or white, oily, animal liquor, prepared originally from vegetables by mastication, mixing with the *saliva*, the *bile*, and the *pancreatic juice*, the blood circulating with it, and being at length separated from it in the breasts. It differs, however, from a true vegetable emulsion in two respects, viz. first by coagulating into a curdy matter with acids, capable of forming *cheese*, which *chyle* and all true *emulsions* will not do; the utmost that acids can here procure, being a *tophaceous*, or *chalky kind of substance*, but never a *cheesy matter*: and, secondly, acids precipitate a larger quantity out of it, than it can do out of *emulsions*. These particulars being premised, we may now proceed to our experiments, and begin by proving that new milk is neither acid nor alkaline.

1. If oil of *tartar per deliquium*, and *strong acid spirit*, be poured into separate cups of warm *new milk*, it will cause no motion or ebullition in either of them: but the milk that is mixed with the *acid spirit*, will presently become thicker than it was before.

Now mix together the two parcels of milk,
with

with which the experiments were made, and a great effervescence will immediately arise.

2. That *milk* turns acid by digestion.

Let any quantity of *new milk*, drawn from a sound *animal*, that feeds only upon vegetables, at the distance of about eight hours from her feeding, stand to digest in a clean open vessel of glass, with a heat equal to that of a man in health, and it will soon begin to throw up to its surface a thick, unctuous, creamy or butyraceous part, which will thus rise in a considerable quantity; a much larger proportion of a thinner, or serous liquor, remaining below. Both of them, at first, are sweet to the taste, or manifest no kind of acidity; but by degrees they both turn tart, and, at the end of twelve days from the first of the operation, attain their highest degree of acidity, which is very considerable.

This process will be the sooner finished in *summer*, by reason, as well of the additional warmth, as of the tart, juicy herbage, whereon the cattle feed at that season of the year: but it proceeds slower in the *winter*, when they feed on hay; yet, even in this cold season,

son, it will at length succeed. But, if the milk for this experiment be drawn from such animals as feed solely upon flesh, or have been withheld from food for twenty-four hours, such as labour under feverish disorders, or have just before performed some extraordinary motion, or undergone hard labour, it will rather putrefy, or turn rancid, and run into ichor, then change of an acid nature. One of the first signs of this disposition, is its saline taste ; so that it always may be concluded, that *when milk is brackish upon the tongue, it then begins to putrefy.*

3. That boiling milk will strongly coagulate with acids.

Gradually pour *Spirit of Nitre*, or any other acid, to a quantity of milk boiling over the fire, and no conflict will be made thereby ; but the liquor will presently divide into two different parts, the one thinner, and the other much thicker than milk, notwithstanding the action of the fire upon the matter.

The effect is found to be the same, in all kinds of milk yet known : which by this
means

means is formed into *curd*, whereof *cheese* is made; and a clear thin liquor, or *serum*, which now turns spontaneously acid. The coagulum formed upon this separation, may, by pressure, and the evaporation of its moisture, in time be reduced almost to the hardness of a stone; as we see in some particular sorts of *cheese*: so that it is no wonder, that bones made out of milk are of that strength, and solidity, we find them. Something of this kind will also happen in *emulsions*, but in a less degree; for which reason, when we prescribe emulsions, we should be cautious not to mix acids along with them.

This process may serve to shew us in what cases, and constitutions, it will be improper to use milk: for, if it should be taken by persons, whose bodies abound with acids, the same thing will necessarily happen there as it did in our experiment; that is, the milk will be separated into a thin serous fluid, and a strong coagulum, which, turning *grumous*, may cause obstructions in the *viscera*, whilst it ceases to be mixed and diluted with the *serum*, that, instead of performing this office, may

may now go away in *fetid* sweat, leaving the body *pale, faint, and weak*. And this unheeded cause may give birth to a *pale complexion, a cacochymia, and various chronic diseases*.

4. That milk turns red, by being boiled with alkalies.

If to a quantity of new milk, made boiling hot by the fire, any fixed alkali, as the *salt of tartar*, or its *oil run per deliquium*, be added by degrees, there will a lighter kind of *coagulum* be made, than was before produced by the acid; and the milk, by boiling, will presently change to a yellow colour, and run through all the intermediate degrees, till at length it stops in an intense red.

The *coagulum*, and changes of colour, will be stronger, and more suddenly made, in proportion to the strength of the *alkali*, and continuance of the ebullition. Whence we may see, that milk has a great propensity to turn from its native white into a red colour. The milk of all animals, in a state of health, is naturally white, whatever be the colour of the aliment they take in; and will exhibit the same phenomena

nomena by the treatment of this process: or, if the alkali be very strong, and the operation continued long, it will change at length into a dusky red, or dark colour, and even into a black colour. Whence it is easy to see why the *chyle* so readily changes into a red colour, or blood; for the animal juices, with which it mixes in the body, contain no acid, but rather incline to an alkaline nature. And when any animal that gives suck, becomes feverish, the milk turns from its genuine whiteness to a yellow, and becomes, in a manner, sanious and coagulated.

When the milk of a *nurse* is in this state, the infant manifests a very great aversion to, and dislike of it; and, if the fever continues long, the breasts grow hard, and at length impostumate, so as to prove difficult of cure. The generality of physicians will needs have these disorders to proceed from a certain, imaginary, peccant acid in the body; when nothing can be plainer, as may be learnt from the present process, that they are owing to the action of an *alkali*. And hence it was, that, in the terrible contagion which happened
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among the *cows in Holland*, in the year 1714, their milk proved exceeding thick, yellow, and almost putrefied, before it came from them. And, what is very surprizing, this change was made in it so suddenly, that a countryman, of whom some white milk had been purchased but the evening before, for chemical experiments, complained the very next morning, that he could now get nothing from the same cow, but a thick, pappy, yellow matter, instead of milk.

What we have hitherto shewn of milk holds true, provided it be drawn from any of those animals that feed entirely upon vegetables; and at a time when they are in a state of health: but, if the creature which afforded the milk, labours under any violent distemper, either of an acid, or putrid nature, the phenomena will be quite different. And the same must be expected, if the animal that gave the milk, feeds only upon animals. The *Physicians* who prescribe to the diseases of infants, ought carefully to take notice of these observations: for, if a *nurse* should entirely abstain from acid vegetables, as *wine, malt-liquors,*

liquors, &c. and use only water, or the decoction of animal substances, for her drink; and feed upon nothing but the flesh of animals, as fish, &c. her milk would scarce be capable of turning sour, but would rather putrefy, and smell strong like urine; and the child that drew her breast, would never be free from a fever:—which is often the case of infants of wealthy parents; the nurse being preposterously withheld, by the tender mother, from the use of whatever food is of an acid nature, and confined to live altogether upon *animal diet*, as the most nutrimental. On the contrary, the children of the poor, whose mothers are principally sustained by food of an acid nature, or what in some measure inclines thereto, are much less subject to fevers, but oftener afflicted with those diseases which owe their rise to acids. The cure of both these is best effected by the change of diet in the nurse, from alkaline to acid, or from acid to alkaline. Thus, when the diseases of young children proceed from an acid cause, which may be learnt from the scent of their fæces and eructations, as also
from

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from a preternatural distension of the body, and paleness of the flesh, the diet of the nurse should consist of *fish, flesh*, and the liquor in which they are boiled; the use of *bread, wine*, and other things of an *acid nature*, being forborne: but, if the infant labours under a *burning fever*, appears *red, hot*, &c. the *nurse* should be treated in the contrary manner, with *acids*, and such aliment as is tart and cooling. And thus we are taught the nature of that liquor of which the human body may be entirely composed; and which receives so sudden an alteration therein, that no signs of it can be found twelve hours after it is once admitted into the blood; as the excellent *Dr. Lower* has shewn by experiment: upon which account, no woman that gives suck ought to fast above twelve hours, if she would afford good milk to the infant at her breast. Hence, likewise, we are given to see the reason of such phenomena, both in *acute* and *chronic diseases*; as, particularly, the redness and heat of the body, in the former; and its paleness, &c. in the latter: these generally proceeding from

an *acid*, and those from an *alkaline* cause. And hence, lastly, we learn a necessary caution, in the choice of a *nurse*, viz. that her milk be perfectly white; a tendency to yellowness in it, being a sure, and early symptom of a *fever*.

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Digestion

Digestion and Chylification.

TH E operation of digestion succeeds mastication and deglutition. It includes chylification, and is succeeded by sanguification and nutrition.

Our food, in chewing, is moistened with a liquor supplied by the salival glands, and formed into a kind of paste. Thus prepared, it passes through the *æsophagus* into the stomach, there to ferment. This fermentation is caused, 1. By the salival juice, which is a ferment, and has the same effect on the aliment, that leaven or yeast has on paste. 2. By the heat of the stomach, viscera of the abdomen, and even excrements; which here have nearly the same effect on foods, as a dunghill has on matters laid by the chemists to digest therein. 3. By the remains of foods left adhering in the rugæ, or folds of the stomach, and there turned sour and acrimonious. 4. By the compression of the muscles of the abdomen, and diaphragm. 5. By the liquor

liquor which the repeated compression of those muscles occasions to drip from the glands of the stomach. And, 6. according to the sentiment of some modern physicians, by the air itself, which being mixed, and embarrassed in the aliments, dilates by the heat of the stomach, and separates the parts of the food. These causes all contribute to attenuate, and divide the food, so as to convert it into a cineritious matter, called chyle.

The chyle, Dr. *Drake* observes, is a mixture of the oily and aqueous parts of the food, incorporated with the saline ones; which, while they yet remain mixed with the grosser parts in the stomach, make a thick, whitish, party-fluid mass, called chyme: which, as soon as it is reduced to a consistence, loose enough to be obedient to the pressure, and peristaltic motion of the stomach, is gradually thrust out at the *pylorus* into the *duodenum*, and then is denominated chyle.

The fabrick of the stomach being considered, the heat of the circumjacent parts, the pulsations of innumerable arteries, the great

strokes of the aorta underneath, the constant compression of the diaphragma and abdominal muscles; it must necessarily follow, that the finer parts of the aliment will be first expelled the stomach, and the grosser will remain; till, by the repeated action of the fluids, and the contraction and pulsation of the solids, they also become fine enough to go off. Thus is the stomach left empty, and, by means of its muscular coat, reduced to a state of contraction, and appetite is renewed.

The chyle, in the *duodenum*, is purified, by mixing with the pancreatic juice and the bile, which thin it, precipitate its grosser parts, and render it more fluid: and, thus perfected, and attenuated, it enters the lacteal veins, which convey it into the *receptaculum chyli*, where it is further diluted by the lymph, which is brought hither in abundance. Hence it arises into the thoracic duct, and enters the subclavian vein; where being taken up by the ascending cava, it is poured into the right ventricle of the heart. The chyle thus mixing with the blood, embarrasses

barraffes the globules thereof, and thus abates its motion : and hence is that inclination to go to sleep after meals. But, by degrees, the blood communicates its motion to the chyle ; and, by its volatile and exalted parts, together with the saline and nitrous parts of the air, subtilizes, and gives it its last perfection. Then the digestion is finished ; and the foods, being by so many changes rendered the immediate matter of nutrition, are carried by the blood into all parts of the body, to repair and fill the vacancies of such as are continually dissipating, and exhaling ; or even to add new ones.

As to the grosser parts of the foods, separated from the chyle, they assume the colour of excrements from the bile ; and their rank smell they derive from the coarser sulphurs thereof. These sulphurs, and salts of the excrements, serve, after they have passed through the intestines, and are arrived at the last, which is the rectum, to vellicate the muscles thereof, and dispose them to relax, and thus to apprize Nature of a necessity to discharge.

The separation of the urine from the blood may be esteemed a part of perfect digestion; the design of such separation being to render the blood more pure and balsamic, and of consequence more fit for nutrition; which the salts, the urine abounds withal, greatly prevented. This separation is thus performed: the branches of the emulgent arteries, which terminate in the glands, whereof the substance of the kidneys is composed, carry the blood thither; where a serosity is separated from the blood, by means of the pores in the glands of the kidneys: those pores representing the holes in a sieve, which only let pass such things as are of a less diameter than themselves. This serosity, called urine, is discharged hence into several little tubes, which, joining into a kind of pyramids, yield their humour into the pelvis, whence it runs through the ureters into the bladder.

Sanguification.

Sanguification.

Sanguification succeeds chylication, and is followed by nutrition: it is the action whereby chyle is converted into blood, and it is thus effected. The chyle, having passed the lacteals of the several kinds, is delivered into the blood at the subclavian; whence the two humours pass together to the right ventricle of the heart, where being yet more intimately mixed, they circulate together through the whole body; till, after several circulations, and depurations at the several colatures and strainers of the body, they become assimilated, or, as the chemists call it, cohobated, so as only to make one uniform compound mass, which appears to be nothing else but chyle altered by the artifice of Nature, and exalted into blood. In effect, it does not appear that any thing extraneous is mixed with the circulating liquor but chyle, excepting what was before separated from it for particular occasions; unless, perhaps, it should receive some portion of

air in the lungs, which is a point long disputed, and yet scarce ascertained.

Indeed, that there is a quantity of air mixed with the blood, and circulating with it, is granted; but whether this be any more than what was at first contained in the bodies whereof the chyle was formed, is much doubted.

We may admit of two degrees of sanguification; the first amounting to no more than a confusion, or such an intimate mixture of parts, as suffices to confound the different coloured liquors, as that the whiteness of the chyle shall be lost or drowned in the redness of the blood, so as never more to appear in its own shape and colour. This we suppose may be effected by repeated circulations alone; though how many circulations are necessary thereto, it is difficult to determine.

The second degree of sanguification, is, when the parts of the chyle are so exalted, or comminuted and subtilized, as to lose all tendency to a coagulatory separation, such as they have in chyle and milk.

To these two degrees may be added a third,
wherein

wherein the fibres and filaments of the crude blood are so broken and blended with the serum, as not to be again separable therefrom. This is a morbid sanguification, such as happens in fevers, &c. attended with a bloody sweat, purple spots, &c.

All these degrees of sanguification, Dr. *Drake* makes no doubt, are procured by reiterated circulations, wherein as well the intestine, as the progressive motion, conspire to the mixing and comminuting of the adventitious parts. Doubtless they have their stated period, wherein they are in perfection; though where precisely to fix it, we do not know.

Nutrition.

BY the continual motion of the fluids in the minute vessels of the body, and the action of the muscles, &c. small particles are of necessity worn off from the solids, become mixed with the fluids, move with them, and are at length eliminated and exhaled through the pores: and, at the same time, the fluids, diminished as they are by a constant attrition, apply to the orifices of the perspiring vessels, and vanish out of the body.

Hence the animal body, by the very condition of its frame, becomes soon liable to destruction.

To preserve life, therefore, it is necessary, that a restitution be made to the juices and solids of the body, equal and similar to what is lost in those motions; which is what we call the action of nutrition.

Now, the lost juices are easily supplied by meat, drink, air, &c. taken into the stomach, digested, converted into chyle, then into blood,
and

and thence secreted by the proper ducts, and carried by the action of the body to the proper receptacles.

But the nutrition of the solid parts is much more obscure. This, indeed, has proved the subject of infinite doubts and differences among authors; nor had we any rational or satisfactory account of the same, till that of the accurate *Boerhaave*, whose doctrine is as follows:

Every solid part of the body consists in other lesser ones, in all respects like the larger; vessels, v. gr. of vesicles, and those of others still smaller; bones of ossicles, &c. which structure goes beyond all limits of sense, however assisted by art; as appears by the experiments and observations of *Malpighi*, *Ruyfch*, *Leeuwenhoeck*, and *Hook*. Yet it is scarce possible this division and subdivision should be infinite, as that of foods and juices is.

Again, it appears from microscopes, injections, small wounds, exsiccations, &c. that the solid parts of the body are very small, compared with the fluids; and it is almost demonstrable, from considering the rise and generation of the vessels, and the resolution of the
greater

greater vessels into their smaller constituent ones, that all the solid mass of the body is constructed of mere nerves, as its elements.

And, in effect, all this mass, an incredibly small particle only excepted, at first arose out of what was a very small colliquament, much like the nervous juice itself; as is abundantly shewn by the great *Malpighi*, in his two treatises on incubated eggs. For neither does the white of the egg nourish, till, by means of the incubation, it have passed innumerable degrees of fluidity, from its first thickness to that exceeding subtilty wherein it terminates. But, even then, the liquor thus given in the embryo is exceedingly thick, in comparison with what it is to be, when converted into its vessels and viscera.

Now, the first tender solids arising from this subtile humour, do again pass infinite intermediate degrees, ere they arrive at their utmost state and consistence; as is shewn by *Malpighi* in eggs, and by *Ruyfch* in embryo's and foetus's. Hence, therefore, it follows, that the solids, in their first formation out of the liquids, whence they arise, only differ from them in rest, cohesion,

hesion, and figure. Therefore, such a particle, now in its fluid state, will become a part of the solid to be formed out of it, as soon as there happens to be a power to effect its cohesion with the other solid parts; howsoever that cohesion be effected.

This cohesion is easily produced in a fibre already formed, if there happen to be a proper cavity in the solid, left open by some lost particle in the fluid, answerable thereto in bulk, figure, and nature; and, lastly, if there be a power wherewithal to intrude it into that place, or accommodate it thereto. Thus will arise a real nutrition of the solids in the minute vessels, by whose union the large ones are formed; that is, in the nerves, or in vessels similar thereto: which being impracticable by any other liquid than that brought into these vessels, it appears very evident, that the nervous juice, at least a juice perfectly like it, is the immediate matter of nutrition: whence nutrition appears one of the last and most perfect actions in the body; since to have this laudable, all the precedent actions must of necessity have been so.

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The chyle, therefore, which some make the immediate matter of nutrition, is, indeed, fitted to fill the larger vessels; but it cannot nourish or restore them. This, when attenuated, changed, more intimately mixed in the lungs by means of respiration, and thus fitted for the passage of certain vessels, is, indeed, rendered fitter, yet far from being quite fit, to be the matter of nutrition.

But, by the repeated action of the lungs, the viscera, vessels, &c. there is formed out of this humour, a soft, tenacious, plastic, insipid serum, which, thickening by the fire, becomes perfectly like the white of an egg. This fluid, therefore, has in it all the conditions found in that, from whence, by sure experience, we know all the solid parts of an animal arise, by mere incubation. It is, therefore, a step nearer, but is not yet quite disposed for nourishment. Much less is the cruor, or red globular part of the blood so. Neither are yet fitted to enter the vessels; yet both the one and the other are, by different authors, made the nutritive juice.

But as the heat of incubation, so the action
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of the viscera and vessels on the serum introduces various changes therein ; till at length a part of it be rendered subtile enough for the purpose required. This, when exhausted, is instantly repaired : and thus we have the true immediate matter of nutrition.

But this same humour, losing too many of its oily parts, by many repeated circulations, is rendered too sharp ; and, being likewise stripped of its most liquid parts, from the same cause, becomes too dense, and is thus rendered unfit for this secretion. Hence the necessity of new chyle, and new food, to keep up nutrition.

The matter of Nutrition thus ascertained ; the manner wherein, and the cause whereby it is effected, are as follow :—a juice being driven directly through a full, conic or cylindric, elastic or rigid canal ; if its course be from a wider to a narrower part, or if it have any thing to oppose its motion ; will endeavour to stretch the sides of its canal according to the axis of its length. This must be the case every-where in the body, except, perhaps, in the veins and receptacles. By this nifus, or endeavour,

endeavour, how weak soever, continually repeated, the vessels will be insensibly lengthened out; and, in lengthening, they will be made more and more slender. Hence the last extremities of the vessels, which in man are extremely small, are continually stretched, and rendered less and less coherent, i. e. still nearer and nearer to a dissolution; and thus at length will they cohere so weakly, as scarce to differ from fluids.

While such motion goes on, therefore, and the propulsion is continued, there will, of necessity, happen these two things: first, the outmost particles of the minutest tubes, being torn off, will again be converted into a kind of humour, what part of the body soever they stick in: secondly, the smallest particles, which by their union composed the slenderest fibrillæ, will be so separated from each other, as to leave open interstices in those places, where, before, they cohered. Both these effects will be produced at all times, and in all parts of the body, so long as life continues; especially where Nature is strong, and the actions of the body violent. But the same
humour

humour whereby these effects are produced, containing abundance of particles similar to those thus separated and lost, conveys and applies them to those interstices, by that very impetus whereby it endeavours to distend the canals; and, thus intercepted, at length, it forms, adapts, and fastens them, so as to adhere in the same manner as the former.

The matter, preparation, application, energy of motion, still remaining the same; what from time to time is lost, is thus presently restored; and the solids continue in the same state as before, i. e. they are perpetually nourished, and supplied, and preserved.

In this the Creator's wisdom is very conspicuous; that the greater the loss is, the more copious is the supply; and that those parts, first spent in the action of the body, are the first restored.

Farther, it is evident, that the newer, the more tender, and the nearer to the moving cause these vessels are, the more easily will they be lengthened, distended, destroyed, and repaired. Our bodies, therefore, the nearer to

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their origin, the more do they grow : for, the action still continuing, the greater vessels become more extended by their fluid ; and, at the same time, the smaller, whereof the membranes or coats of the larger sort are composed, are compressed, dried, and at last concreted, and grow up ; whence arises a firmness, indeed, of the fibres, but a loss of the vesicles.

Thus, what were formerly vessels, commence mere hard ligaments ; and thus, the fluids being once fixed, the several vessels coalesce. From the concurrence of these causes, arise the strength, hardness, rigidity, and thickness of the solid parts.

Hence the number of vessels is greatest in embryo's, and as age comes on, it sensibly diminishes ; and hence it is that their weakness constantly declines, and their strength and firmness increases. In young people, therefore, the quantity of humours is redundant, and greatly exceeds the solids : in old men the solids exceed the fluids. And, hence, we see the reason, manner and appearance of growth, state, declension, and, at length, of death, from pure old-age,

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A person who considers this account, and compares it with what is actually observable in the body, will find every circumstance to obtain : thus the whole *cuticula* is every where, and at all times, constantly desquamating, peeling off, and again renewing ; and thus the hair, nails, teeth, continually rubbed, torn, and worn off, come again ; parts taken off from the vessels, and the bones, soon grow again. And the *sordes*, or filth, rubbed off from the extremities of the vessels, when examined by a microscope, or diluted and viewed in water, appear plainly to consist both of solid and fluid parts ; and those carried off by washing, shaving, &c. are the same.

Hence, too, we see that a general increase of the bulk of the body, with regard to habit, as in fat, fleshy, brawny persons, does not arise from any increase of the solids, but by their extension into larger cavities, crowded with stagnant humours. And hence fatness becomes hurtful, as it loads, weakens, and suffocates.

Whence arises a very considerable distinction between Nutrition and Repletion ; to

which a physician must have special regard : the one strengthening and condensing the vessels, the other weakening, loosening, and extending the same.

Hence, lastly, we see why the fabric of the solids is not destroyed by the contained fluids ; how our machine comes to subsist so long ; why, when a nerve is corrupted, the nutrition of that part it belongs to, ceases ; and why the same obtains in an artery : why in an embryo there are no solids, in a fœtus very few, in old men a great deal ; and why even the nerves, tendons, arteries, and receptacles, become first cartilaginous, and then bony.

Secretion.

THE *blood* is the general source of all the different juices, in the bodies of animals; and from it they are all secerned, by particular organs, called glands.

The manner wherein this secretion is effected, has been greatly enquired into in these last ages; though not with the greatest success.

The ancient physicians, indeed, contented themselves to assert certain particular virtues, or faculties inherent in the several viscera, whereby they were determined to separate one liquor rather than another; without troubling themselves much about the manner wherein this was done: but Dr. *Keil*, whose theory prevails most in *England*, accounts for secretion, from the joint consideration of the different diameters of the vessels, the different velocity of the blood, the different angles the ducts make with the arteries, and the different attraction of the different parts, under all these different circumstances.

The theory of animal secretion, whereby the divers juices of the body are separated from the common mass of blood, by means of the glands, is one of the improvements in physic, for which we are indebted to *geometrical* reasoning. The sum of what our late writers on this subject have shewn, may be reduced to the following heads :

1. Different juices may be separated from the common mass of blood, by means of the different diameters of the orifices of the secretory ducts : for all particles, whose diameters are less than those of the ducts, will pass through them ; so that any matter may be evacuated by any of the glands, provided the diameters of its particles be made lesser than those of the secretory duct, either by a comminution of the matter to be separated, or by an enlargement of the separating passage.

2. By the different angle which the secretory duct makes with the trunk of the artery : for all fluids press the sides of the containing vessels in a direction perpendicular to its sides ; which is evident in the pulsation of the arteries,

ries, it being to that preffure that the pulsation is wholly owing. It is likewise evident, that the blood is urged forward by the force of the heart ; so that the motion of secretion is compounded of both these motions. Now, the lateral preffure is greater, when the direct velocity is so ; but yet not in proportion to such velocity : for the lateral preffure is considerable, even when the fluid is at rest ; being then in proportion to the specific gravity of the fluid : and in a fluid like the blood in the arteries, which is thrown in a right direction, or a direction parallel to the axis of the vessel, the lateral preffure will be in a proportion compounded of both : from whence it will follow, that, if two particles of equal diameters, but of unequal specific gravities, arrive, with the same velocity, at an orifice capable of admitting them, yet they will not both enter in and pass, because their motion of direction will be different ; so that the diversity of the angles which the ducts make with the trunk of the artery, is altogether necessary to account for all the possible diver-

fities of fecerned fluids, even supposing their diameters and figures to be the same.

3. By the different velocities with which the blood arrives at the orifices of the secretory ducts: for, since the secretions are made in a fluid form, no possible reasons can be assigned, why some animals have a soft, loose texture of the solid parts, and why one part of the body is of an easily separated texture, and others of a firmer; but this different velocity of the blood at the orifices of the secretory ducts, whereby the particles fecerned for nourishment, and accretion, are drove or impacted into the *vacuola* that receive them, with a greater or lesser force; it being difficult to imagine that such a diversity in texture can altogether proceed from the different solidities and contacts of the constituent parts.

In this theory of Dr. Keil, there is, indeed, something arbitrary and conjectural: besides, the reasoning is carried such a length, that, in a thing, the principles whereof are so obscure, the parts or organs so imperfectly known, and the whole process carried on out
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of sight, the mind can scarce safely acquiesce in it.

M. *Winslow*, of the Royal Academy of Sciences at *Paris*, seems to have taken a better course for the discovery of this important action of secretion. He does not take up with conjectural principles, nor draw a plausible scheme of reasoning therefrom through the dark; but applies himself to experiment, and investigates, in Nature herself, and the structure of the parts, the manner secretion is performed in.

From a strict examination of the several kinds of glands, both in men and other animals, he finds, with some other *anatomists*, that the glands are only bundles, or plexus's of vessels; but the vessels peculiar to the gland, and which constitute the principal thereof, M. *Winslow* first discovered to be tubes, furnished on the inside with a kind of down, or *lanugo*, or rather a very fine spongy tissue, which fills the whole cavity of those vessels like a pith, or marrow. This he finds in all the glands of all animals. In different glands, it appears of different colours,

lours ; and this different colour is even found in the different glands of *Jætus's* themselves.

The gland, then, is, or at least its main part is, a compound of these downy or spongy vessels, which, from their office, we will call secretory vessels, or ducts, and which frequently do, almost of themselves, form what we call a gland, or glandulous body : though, beside these vessels, we usually remark four other kinds, viz. arteries, veins, excretory ducts, and nerves. The secretory ducts we distinguish from the excretory ones ; in that the former, by the peculiar texture of their down, serve to separate a particular liquor ; and that the latter only serve to receive the liquor thus secreted, and to carry it to the place it is destined for.

For the manner wherein the glands act, in separating the several liquors from the body, *M. Winslow* lays it down thus :—It is a thing well known by physicians and chemists, that a piece of brown paper, which is only an assemblage of small fibres impacted close to each other, having once imbibed oil or water, will never let any other liquor pass through it,

it, but of the same kind with what it is impregnated withal. All others it stops. And the like is observed of a wick of *cotton*, or other matter, which having first imbibed its fill of oil or water, and being then dipped at one end, in a vessel full of oil and water together; the wick that had imbibed the oil, will only raise and distil oil, and that with water, only water. Now, in the secretory ducts of the glands, we find a parallel structure; an assemblage or plexus of fine threads, or filaments, bound close together, much as in brown paper, or a cotton wick; only differently disposed. This plexus, then, having once imbibed a certain juice, will not let pass any of the liquors which arrive at the orifices of these ducts, but that which it had first imbibed.—The cause of this phenomenon is, doubtless, to be referred to the great principle of attraction, which is found stronger between the homogeneous, than the heterogeneous parts of the same fluid.

As the blood, then, is not a *homogeneous* liquor, but a compound of an infinity of different parts or *molecules*, some oily, others
mucilaginous,

mucilaginous, aqueous, saline, subtle, gross, &c. in its motion along the arteries of the gland, it becomes divided into all the little ramifications thereof; by which means its velocity is exceedingly abated, and its *molecules* are obliged to go off one by one, through the narrow passage of the artery into the vein, and of consequence to pass over the orifices of the secretory ducts of the glands, whose down is already tinged with a juice of such a nature. Such of the *molecules*, therefore, as are found of the same nature with the juice they meet withal at the entrance of the secretory duct, join themselves to them, and enter the ducts, driven on by others that follow them. Thus they pass, successively, through the whole vessel, and at length go out of it into the excretory duct; while the rest, which are of a different kind, run over the orifice of the secretory vessel, without ever mixing with the juice thereof, and thus arriving in the vein, they are carried back to the heart.

All that remains, is, to explain how these parts should have first imbibed the particular
juices

juices necessary for their respective secretions : how, for instance, the *bile* should come to be separated in the liver, for the first time, preferably to any other liquor ? To this M. *Winslow* answers, that, having observed the glands of the smallest fœtus to be coloured, much as in adults ; it appears highly probable they had been imbued with the juices they were to fibrilate, at the first formation of the animal ; or at the same time when the solid parts of the fabric themselves were framed.

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The Blood.

THE *blood* appears to the naked eye, uniform and homogeneous. Its composition is discovered, by the *microscope*, to be small red globules swimming in an aqueous humour : the one fibrous, which coheres into a mass; and the other thin and transparent, retaining its fluidity when cold. It consists of phlegm, volatile salt, oil, and earth.

Its *origin* is in the chyle, which passing the lacteals is delivered into the *subclavian*; where, mixing with the *blood*, they proceed together to the right ventricle of the heart; and there, being yet more intimately mixed, they circulate together through the whole body : till, after several circulations and secretions, at the several strainers of the body, they are assimilated, so as to make one uniform compound mass, which appears to be nothing else but chyle altered by the artifice of Nature, and exalted into blood; there being
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no appearance of any thing extraneous mixed with the liquor circulating in the blood-vessels, but chyle; excepting what had been before separated from it for some particular purposes, which being once served, it is returned to it again: unless, perhaps, it may receive some portion of air in the lungs.

From the principles, or constituent parts of the *blood*, variously combined, and distributed by its circulatory motion, it becomes susceptible of various alterations and impressions; the principal whereof are, coagulation, and dissolution. These two contrary affections of the blood, Dr. *Drake* ascribes to the opposite kinds of salts, acids, and volatile alkalies. For though, adds he, in a human body, no sincere *acid* is found, nor could it, indeed, be, consistent with life; yet it may, and does often, enter the blood, so compounded as to bridle the volatile, alkalious salt of the blood, and to hinder the due attenuation and mixture of the several parts; as is the case in a *diabetes*, and perhaps in a *chlorosis*, where the blood is thick and torpid: on the other hand, where the alkaline salts are too redundant, the
blood

blood is rendered too thin and fluid, so that the difference of its constituent parts is lost.

Another affection frequent in the blood is, a too great abundance of oils, or oily particles; by means whereof the active parts of the blood are too much clogged, and those parts which should be secreted for peculiar uses in the body, are detained; and perhaps the solids, through which it passes, too much lubricated, their tone vitiated, shrunk, relaxed, &c. whence that sluggishness and inactivity of very fat people.

The contrary affection to this is, the defect of oil in the blood; which being, as it were, its balsam, lines, and preserves the parts from being fretted and corroded by the salts, whose spicula or edges are, as it were, sheathed in this soft, balsamic matter, and their attrition against the solid parts prevented. This state of the blood is usually attended with a general *atrophy*, and a fretting and corrosion of some particular parts; whence serous *defluxions*, *apostumations*, and *ulcers*, especially in the lungs, whose tender vesiculous substance is more easily annoyed than any other, by the acrimony of the saline serum.

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There are other affections of the blood, resulting from an inordinate temperature and mixture, which regard the earthy parts; the consequences of which are the *stone*, &c. and others that do not originally spring from any dyscrasy, or undue mixture of the *elements*, but from an alteration in its motion; whence supernatural fermentations are induced. The occasions here may be various: sometimes *fevers*, and other disorders occasioned by *surfeits*, *debauches*, *catching cold*, *violent exercise*, &c. whence *atonias*; at other times, some latent malignity of the air, and from hence *epidemical diseases*.

The morbid excess, or defect of the blood's velocity, is as remarkable as that of its quantity; but this cannot be judged of from the natural state of the pulse in health, which is different in different constitutions. The ordinary number of pulsations in a minute is from 70 to 80, under a state of waking and moderate heat; and from 80 to 96 during the time of sleep.

The too great heat and viscosity of the blood is one of the most generally prevailing

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vailing *morbific constitutions*, especially in a country as ours, abounding with all the temptations to, and provisions for ease and luxury. This state of the blood is brought on generally by drinking, too freely, hot, spirituous, inflammable liquors, and feeding plentifully on things which contain a large proportion of *volatile oily salts*; as *flesh meats half boiled or roasted*, eaten in their *bloody gravy*; and all *hot, spicy, and high-seasoned broths, sauces, and the like*. The blood being by these over-heated and rarefied, the *serum* is, in consequence, thickened into a sort of *jelly*, by which means it is rendered unfit for motion, coheres too strongly with the *crassamentum*, and passes but slowly through the *lymphatics*, and *secretory glands*. In this state the thicker and more viscid parts of the serum, settling in the *lymphatics*, and *receptacles of the glands*, gradually obstruct, and fill them up: from which obstruction, and diminished, or intercepted circulation of the animal fluids, the heat and viscosity of the blood still increases, till the vital flame, raised too high, produces
a fever.

a fever. This state of the blood, and its symptoms, is aggravated by a sedentary life, or the want of due motion and exercise ; for while the natural motion of the muscular *fibrillæ* is either not at all, or but little promoted by voluntary action, the glands and their receptacles must be the sooner stuffed up, and the circulation of the lymph, that powerful means by which Nature continually cools and dilutes the blood, sooner be suspended.

The blood is cooled, diluted, and attenuated by temperance, exercise, the use of water as beverage, and, otherwise, by deobstruents, especially *mercury*, in the gentler preparations of it, as *æthiops*, or *cinnabar*, given in moderate doses, so as not sensibly to affect the stomach, or excite salivation for a long time.

As to the greater or less degree of fluidity, and viscosity of the blood, it is manifest, that this humour may either have its parts too intimately divided and attenuated, or, on the contrary, there may be too close a cohesion between its parts, so as to render the mass too thick and viscous. The first of

these states disposes the blood to a too quick, easy, and rapid motion, and sometimes dissolves and fuses it to such a degree, that the *globules* pass, together with the *serum*, through the *glandular strainers*, and occasion *bloody secretions*, as in *malignant* and *pestilential fevers*, *bloody sweats*, and other *præternatural hæmorrhages*. The latter, or viscid state, renders the blood unapt for motion, and disposes it to stick and lodge in the *capillaries*, and *lymphatics*.

The specific gravity of the *blood*, or the various degrees of its rarefaction and condensation, depend on the degrees of heat: as the natural heat either rises too high, or sinks too low, the blood will, of consequence, be either too much rarefied, or too much condensed. In the former case, when the blood is overheated and rarefied, the expansive force of the *elementary fire*, and *air*, contained in the mass, prevails over the *corpuscular attraction*; and then, by the coagulating power of heat upon the *serum*, and its too intimate mixture and cohesion with the *crassamentum*, the lymph, which should form the secretions, cannot be separated;

separated, but the *serum* is, as it were, absorbed in the *crassamentum*; in consequence of which the secretions must be diminished, or quite suspended, and a fever ensue, more or less inflammatory, according to the degrees of heat in the blood, and the consequent suspension, or interruption of the lymphatic secretions.

On the other hand, where the blood is immediately cooled and condensed, the corpuscular attraction prevailing over the expansive force, the serum will be over-thinned and diluted, and consequently separated too fast, and thrown off too plentifully on the glands and lymphatics; so that, if the urinary drains happen to be obstructed, a surcharge of serum must ensue, and in consequence of this a dropsey: and, in case the fluid parts of the urine pass freely enough, and only the grosser recrements, *salts*, and *fabula*, be kept back, these, being thrown on the several organs, will produce the symptoms of the *scurvy*.

Thickness of the blood is also a preternatural concretion, following on a *plethora*, or *diminution of its motion*; from which, *stagnations*,

and other disorders draw their rise. This is either general, throughout the whole body ; or special, confined to some particular part ; as in *hypochondriac* and *hysteric* cases, where the blood, by reason of the slowness of its progression, acquires a lentor in the region of the abdomen. To the same cause are also owing *polypuses*, *apoplexies*, *plurisies*, *infarctions of the viscera*, *palpitations of the heart*, *suppressions of the menses*, &c.

Solubility of the blood is that tendency in the *serum* and *crassamentum*, by which they are disposed to separate and disengage from each other, when the blood comes to cool and stand in a basin. When blood is taken off, it must frequently stand a long time at rest, and in a cold place, before its principles can disunite, so as to effect a perfect separation of the *serum* from the *crassamentum* ; and yet at last, when the separation is made, there may be a sufficient quantity of *serum*, and perhaps a greater proportion than ordinary : whereas, at other times, this separation shall be quickly made, and the solution effected after a short time of standing in a warmer air. The principal

cial reason of this difference seems to be, the different degrees of heat to which the blood is subject, the globules being much more rarefied and expanded at one time than at another: and, therefore, as the arterial blood, being hotter, is longer in effecting this separation than the venal, so, in a high inflammatory fever, the venal requires a considerable time standing in a cool place before it can throw off its serum; but, in a cold, condensative state of the blood, this separation is procured almost presently.

The prescriptions of modern physicians are generally founded on supposition, that a great share of diseases depend chiefly on the *vitiated constitution of the mass of blood*; and their cure on restoring the blood to its natural state, to be done partly by *evacuants*, but more by *specific alterants*, so adapted, as to furnish certain *active corpuscles proper to ferment, or excite an unusual commotion or agitation in the blood, whereby it may be corrected, and enabled to expel, or surmount the cause of the disease*. But it must be observed, that, when the whole mass of blood is to be altered, the course of physic must be continued a long time, by

reason the blood moves slower and slower the further it moves from a great artery ; consequently, it must be a long time before the whole mass of blood can be mixt with the alterative medicine. Add, that the circulation of the blood through glands, which receive arteries immediately from any great vessel, being very quick, they may carry off a great proportion of the medicine in a very little time ; so that *it is not the taking great quantities, but a constant taking for a considerable time, that can alter the mass of blood.*

*Of the Circulation of the Blood, and
Animal Spirits.*

THE *blood* is the grand principle, and great treasure of life, by which all *animals* are supported. It is originated from *chyle* prepared by coction and digestion; and subtilized by circulation through the *arteries* and *veins*, till it becomes fit for *nutrition*.

From this prepared fluid, a fine subtile juice is separated in the *brain*, and from thence carried by the *nerves* to all parts of the body, for the performance of all the *animal and vital functions*.

The *æconomy of Nature* shews, how these circulating fluids are passed through the *arteries*, *veins*, *nerves*, and their appendages, in order to execute these wonderful designs.

From the right *ventricle* of the heart, by the contraction of its fibres, the blood is forced through the *pulmonary* . . . into the *lungs*, and distributed by its branches through
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the whole substance thereof, and admitted into the extremities of the *pulmonary vein*, called *arteria venosa*; whence passing into four large vessels, which unite together, it is brought to the *sinus venosus*, or trunk of the *pulmonary vein*, by the force of whose muscular structure it is driven into the left *ventricle* of the *heart*, which, therefore, is become relaxed, and ready to receive it: the *valvulæ mitrales* hindering its reflux into the pulmonary vein. From hence it is forced into the *aorta*, at whose orifice there are three *semilunar valves* to prevent its return, which distributes it all over the rest of the body; from whence it is brought back again by the *cava* to the right ventricle of the *heart*. Thus is the *circulation of the blood effected*.

The great artery, after it leaves the heart, divides into two large trunks, called the *ascending* and *descending*, or the upper and lower trunks.

The *aorta ascendens* conveys the blood to the head, and the upper parts of the body; and it is subdivided into three branches: the first, the *right subclavian*; whence arise the
carotid,

carotid, vertebral, cervical, right axillary, &c. The second is the *left carotid*. The third, the *left subclavian*; whence arise the *left cervical, vertebral, and axillary*.

The *aorta descendens* carries the blood to the trunk, and the lower parts of the body. Out of this arise the *bronchial, intercostals, cæliac, phrenic, mesenteric, emulgent, spermatic, iliac, umbilical, epigastric, hypogastric, crural, &c.* with their several ramifications.

The arteries are ordinarily composed of three coats, or *membranes*. The first, or outermost, *nervous or tendinous*; being a thread of the fine *blood-vessels, with nerves*, for nourishing the other coats. The second, *muscular*, and made up of *circular, or rather spiral fibres*; of which there are more, or fewer strata, according to the bigness of the *artery*: these fibres have a strong elasticity, by which they contract themselves with force, when the power, by which they have been stretched out, ceases. The third, and inmost coat, is a fine, dense, transparent *membrane*, which keeps the blood within its channels; which, otherwise, upon the dilatation of an artery, would

would easily separate the *spiral fibres* from one another. As the arteries grow smaller, the coats grow thinner.

All the arteries are conical; that is, they begin with the trunk, and, growing less and less narrower, end in branches so minute, that they escape the sight, unless assisted with the help of *microscopes*; by which, in the tails of *tadpoles*, and very small *eels*, the extremities of the arteries seem, by the swift, uninterrupted course of the blood, to be insculated, or continued to the originations of the veins: though, by the transparency of those vessels, the actual continuation be not visible.

The coats of the arteries are of a very dense, close contexture; by which means, the blood not being visible through them, they generally appear white. Add, that the blood, proceeding from a greater capacity to a less, is thereby somewhat obstructed in its passage; but, being forced on by the motion of the heart, it distends the coats, and thereby occasions the *salient motion called the pulse*. By this thickness, and whiteness of the arteries,
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with the pulsation observed therein, they are distinguished from veins.

Now, after the same manner, as the arterial blood is perpetually carried into all parts of the body, furnished with those vessels; so we conceive a juice, prepared in the *cortex* of the *brain*, and *cerebellum*, conveyed thence every moment, through the nerves, to every part of the solid body.

The smallness of the vessels in the *cortex*, as exhibited in *Ruyfch's* injections, which yet are only arterious, and therefore incredibly thicker than the last emissary derived thence, shews how slender these hollow nervous stamina must be: but the great bulk of the brain, compared with the exceeding smallness of each *fibrilla*, shews that their number must be greatly beyond the limits of all imagination.

And again, the great quantity of juice brought hither, and violently agitated, will occasion a constant plenitude, openness, and action of these little canals.

But as fresh juice is every moment prepared, and the last is continually protruding the former;

former; as soon as it has done its last office, it seems to be driven out of the last *filaments* into the smallest *lymphatic venulæ*, both about the glands and elsewhere; thence into the *lymphatics* somewhat larger; and, again, from these to the common *lymphatic vessels with the valves of veins*; and, at length, into the *veins of the heart*: and thus, like the other juices of the body, does it make its circuit round the body.

Upon the whole, if we consider the great bulk of the *brain, cerebellum, medulla oblongata, and medulla spinalis*, with regard to the bulk of the rest of the solids of the body; that the *brain and carina*, that is the *spinal marrow*, are the basis of an *embryo*, whence, according to the great *Malpighi*, the other parts are afterwards formed; and, lastly, that there is scarce any part of the body but what feels, or moves: it will appear very probable, that all the solid parts of the body are woven out of the *nervous fibres*, and consist wholly of them; and that the *nervous juice*, which denotes a pure, subtile, volatile humour, better known by the name of *animal spirits*, is
secreted

secreted from the *arterious blood* in the cortical part of the brain, collected in the *medulla oblongata*, and thence driven, by the force of the heart, into the cavities of the *nerves*, to be by them conveyed throughout the body, for the purpose of *sensation and animal motion*.

The existence of the *animal spirits*, is, indeed, controverted by some; but the infinite use they are of in the *animal æconomy*, and the exceeding lame account we should have of any of the *animal functions* without them, will still keep the greatest part of the world on their side. And, in effect, the learned *Boerhaave* has gone a good way toward a demonstration of their reality.

The blood brought to the brain by the *carotids*, and *vertebral arteries*, he shews, is *wonderfully prepared, secreted, elaborated, and changed from its natural state, before it arrives there; insomuch as, contrary to the nature of the rest, instead of cohering by fire, it immediately resolves wholly into a thin vapour, without leaving any fæces behind. And this is thus exceedingly well fitted for the formation of so extraordinary a fluid.*

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He shews further, that the animal spirits are not formed from the *cruor*, but from the *serum of the blood*: which *Malpighi's* history of the growth of a *fœtus*, in an incubated egg, shews to be divisible into parts, or corpuscles, inconceivably smaller than the *cruor*.

He adds, that the nature of this juice is such, as that no *salts*, or *oils* in the body, can contribute any thing to it; and that, in all appearance, it is only a most subtile, pure water; which liquor is found to resemble these spirits in its extraordinary miscibility, solidity, softness, simplicity, and want of elasticity.

The same author shews further, from the magnitude of the *carotids*, and *vertebrals*, their straight, uninterrupted course, and great quantity of blood they bring, the bulk of the *cortex*, &c. that there must be a very great quantity of this liquor; and that there is fresh prepared every moment of life; and that it is driven every moment, by the action of heat, &c. from the *brain* and *cerebel*, to all parts of the body furnished with *nerves*; which motion, he shews, from the exceeding fineness,
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crookedness, &c. of the ramifications, must be very gentle, equable, and constant, one part continually driving before it another.

Upon the whole, it is no wonder that this fluid escapes the notice of our senses; and that *no ligatures, wounds, punctures, injections*, or the like, make either it, or the apertures of the *nerves*, through which it flows, visible: nor does it avail, what some, who allow the existence of *animal spirits*, urge against there being any coherent juice, or liquor, viz. that we should find it ooze out, and wet the adjacent parts, as we do in cutting a *lymphatic*, &c. or that, upon binding a *nerve*, the upper part would swell; that the agitation, which objects make on the filaments, would be deadened, &c. that it is impossible a liquor should have two opposite motions at the same time; and that the velocity of the sensations, and rapidity of the motions of man, prove, that the *animal spirits* are rather an *aura*, or even light, than a liquor.

M. *Lewenhoeck* endeavoured, by his *microscope*, to discover the structure of the *nerves*, in the spinal marrow of an ox. He saw there,

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with great delight, minute hollow vessels of an inconcievable firmness, invested with their proper membrane, and running out in length parallel to one another, and making up their composition: and though some hundreds of these go to the formation of the least nerve that can be examined, he not only observed the cavities of them, which he computed to be three times less than their diameters, but, in some, perceived the orifices, as plainly as the holes in a pricked paper are to be seen when looked at against the sun. It requires, however, great dexterity and expedition, to make this examination with success; for, after a thin slice of the spinal marrow is placed before the *microscope*, in less than a minute's time it becomes dry, and the whole appearance vanishes.

Saliva.

Saliva.

TH E *Saliva* is a thin, pellucid humour, separated from the arterial blood by the glands about the mouth and fauces; and conveyed by proper salival ducts into the mouth, for several uses.

It consists of a great deal of water or *phlegm*, and a *volatile salt*; and some add a *sulphureous spirit*.

According to *Boerhaave*, it is void both of taste and smell; it does not harden by heat; it is more copious, fluid, sharp, penetrating, and detergent, as a person has fasted longer; and it is separated from the pure arterial blood.

The glands wherein the saliva is separated from the blood, are the *parotides*, the *maxillary*, *sublinguales*, *amygdalæ*, and the *palatinæ*.

The great use of the saliva, is in masticating, and diluting the food, and making the first digestion thereof. The other uses, are

to moisten the tongue, to render its motion more quick and easy; to lubricate the throat and *œsophagus*, in order to facilitate deglutition; to prevent thirst; and to assist in the sensation of tastes, by dissolving the salts.

Some imagine it to do the office of a *menstruum*, by mixing the oily and aqueous parts of the food more intimately, dissolving the saline parts, and procuring a fermentation in the stomach: but Dr. *Drake* will not allow it fit for that purpose. Were the *saliva*, says he, acrimonious enough for this, it would be impossible but it must offend the stomach; especially considering the quantities of it that many swallow, even upon an empty stomach.

M. *Gastaldi*, in a thesis on the *saliva*, observes, that it takes its name from the salt it contains; which salt he will have to be partly a *volatile acid*, and partly *alkalious*. He adds, that it contains some *oleaginous* parts, and a little *earth*. By being compounded of so many different kinds of parts, it becomes a dissolvent proper for all the different kinds of food whereof we live. Its natural and laudable state, is to be a little more viscid than
common

common water, and much less so than milk. And it is preserved in this state by the application of the spirits, and of the particles of air which insinuate into it.

According to all appearance, the *saliva* is derived from the blood of the arteries : part of the arterial blood brought to the salival glands, serves to feed them ; another part is returned into the veins, and continues the circulation ; and a third part, which is the serum, receiving a subacid quality from them, is there conveyed into *saliva*.

Some authors have imagined, that the nervous juice contributed to the composition of the saliva ; and the rather, because larger and more numerous twigs of nerves are communicated to these glands, than to most other parts, which have a more exquisite feeling than these : but Dr. *Nuck* has refuted this opinion by several experiments.

Too great an excretion of saliva, *Boerhaave* observes, disorders the first digestion ; and hence causes thirst, dryness, a black bile, and finally consumption and atrophy. On the contrary, if no *saliva* be discharged into the

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mouth,

mouth, or if only less than ordinary, it spoils both the manducation of the food, and its taste, swallowing, and digestion; and, withal, occasions thirst.

The necessity of this humour, to dissolve aliment, appears from the contrivance of Nature; in making the salivary ducts, of animals which ruminate, extremely open: such animals as swallow their aliment without chewing, want salivary glands.

The Bile, and Pancreatic Juice.

THE *Bile* is a yellow juice, separated from the blood in the liver, collected in the *porus bilarius*, and *gall-bladder*, and thence discharged by the common duct into the *duodenum*.

It is of two kinds, *hepatic* and *cystic*.—The first, most properly called bile, is separated immediately from the glands of the liver into the *porus bilarius*.—The second, more properly called gall, is separated likewise from the glands of the liver into the gall-bladder, by roots or ducts proper to itself.

The *cystic bile* is thicker, of a deeper yellow, and bitterer; is not evacuated continually, but only when its receptacle is replete; in which case the contraction of the irritated fibres propels it into the *duodenum*.—The *hepatic bile* is greener, thinner, more mild and pellucid, and is continually oozing out; being expelled by the sole action of the neigh-

bouring parts. The *cystic bile* resists acids, and, mixed with other fluids, gives them the like property : it absterges like *soap*, and renders oils capable of mixing with water ; it resolves and attenuates *resins*, *gums*, and other tenacious bodies, rendering them homogeneous to itself. It is neither alkalious nor acid, but seems a concretion of oil, salt, and spirits diluted with water.—By a chemical *analysis*, Dr. *Drake* observes, it affords some *sulphur*, or *oil*, some *volatile sa't*, a good deal of *fixed salt* (in which particular it differs from all other animal liquors), and a moderate quantity of *caput mortuum*, or earth : the basis is *phlegm*.

The principal use and effect of the bile is, by mixing with the chyle and the fæces, to attenuate, resolve, absterge, and stimulate the *fibræ motrices* of the intestines; as also to mix together things very different, to bruise and blunt those that are sharp and saline, or divide those that are coagulated, to open the passages of the chyle, to excite appetite, to act the part of a ferment, and to assimilate crude things to things concocted.—These effects the *cystic bile* has in a greater, the *hepatic* in a lesser degree.

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Dr. *Quincy* thinks the principal use of both sorts of bile is to sheath, and blunt the acids of the chyle, entangling them with its *sulphur*, so as to prevent their being sufficiently diluted by the *pancreatic juice* to enter the lacteals: which seems confirmed by this, that, notwithstanding the great quantity of acid salts in the aliment in the stomach, there are never any found in the chyle after it has passed the duodenum, and been impregnated with the bile continually oozing out of the *porus bilarius*.

Borelli asserts, that part of the bile discharged into the intestines re-enters the *meseraic veins*, and, mixing with the blood of the *vena porta*, is again percolated through the liver; and *Boerhaave* seems of the same opinion:—on which footing the bile has its circulation, as well as the blood.

Some will have the cystic bile brought to its receptacle three different ways, and that it is even composed of three different kinds of bile, whence its different properties:—though Dr. *Boerhaave* takes those properties rather to result from its stagnating in the gall-bladder;
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and, with *Malpighi*, thinks the bitter part may probably become so in the glands between the coats of the gall-bladder, which are furnished from the cystic arteries, whence it proceeds bitter, and mixes with the rest in the bladder.

The bile is a juice of great importance, with regard to the good or ill habitude of the animal. Dr. *Woodward* has traced its effects throughout the body very minutely, and makes no scruple to ascribe most of the diseases thereof to some disorder of the *bile*. This he takes to be the chief spring of the animal machine, and, from this, accounts for most of the *phenomena* of a body, whether healthy or diseased: and yet the ancients generally took it to be no more than an excrement, for which they could not find any use.

Many of the moderns, from a small quantity of bile secreted, have been led into a mistake, that this secretion is not the sole end of so considerable a viscus as the liver. Dr. *Keil* observes, that in a dog, whose common duct was near as big as that of a man, he gathered at the rate of about *two drams in an hour* ;

hour; though, in a human body, there is reason to think the quantity secreted to be greater.

The *bile* is found in all animals: even *pigeons*, &c. which have no gall-bladder, yet have bile, their *liver* being found very bitter. Mr. *Tauvry* observes, that the bile becomes one of the principal causes of thirst, by mixing with the *salival juice*.

Sometimes the bile from yellow becomes greenish, like *verdigreese*, and frequently pale, like the *yolk of eggs*, and that without any other apparent cause than a little motion, a convulsion, or a violent passion of the mind. This occasions many and terrible diseases, as *nauseas*, an *abhorrence of food*, *anxiety*, *sighing*, *cardialgias*, *wind*, *diarrhœas*, *dysenteries*, *acute diseases*, and *convulsions*.

Sometimes it becomes black, and takes the name of *cholera*; in this case, it sometimes tastes like a very *sharp vinegar*: sometimes like putrefied blood, gnawing, burning, dissolving, consuming, occasioning *inflammations*, *gangrenes*, *mortifications*, *violent pains*, and *terrible fermentations*.

Of atrabilis, or black bile, *Boerhaave* distinguishes three kinds: 1st, the mildest, arising from the matter of the blood, put into too great a motion, which hence takes the name of adust: the 2d is an aggravation of the first, arising from the same causes, only heightened: the 3d is a corrupt, parched bile, which, if it arose from a greenish, or palish fort, is still worse.

Too great an evacuation of the bile, either upwards or downwards, robs the chylefaction of its main instrument: hence it prevents digestion, secretion, excretion of the fæces; and produces *an acid temperature, coldness, weakness, paleness, swooning, &c.* If the bile, when prepared, be prevented its discharge into the intestines, it produces a jaundice.

For the manner in which the bile is secreted in the liver, there are various opinions:—some maintaining that the pores of the secretory glandules of the liver have a certain configuration and magnitude, to which the particles of the bile floating in the blood being just answerable, both in bulk and figure, are admitted in, and all the rest excluded.—Others,
not

not allowing any difference in the configuration, as knowing that the pores of all the vessels are circular, and that particles of all kinds will be admitted, if small enough, have recourse to a ferment, which they suppose to reside in the liver, by means whereof the particles of the blood, in their passage through the secretory ducts, assume the form of bile. Dr. Keil chuses to account for the secretion of the bile, from the strong attraction between the particles whereof it is composed; and others have recourse to other *hypotheses*. But, after all that has been said by antient and modern writers, there seems yet a doubt as to its true origin, and where it is generated.

The bile is so acrid, that Nature has furnished the *pancreatic juice* to temper its bitterness.

This juice is an insipid, liquid humour, separated from the blood, and prepared in the *pancreas*. It is neither acid nor alkaline, but a little saline, and much resembling the saliva, in its origin, vessels, and properties.

It is carried by the *pancreatic duct* into the *duodenum*; to temper, and dilute the bile; to
change

change its viscosity, bitterness, and colour; that it may be easily united with the *chyle*, and become one perfect *homogeneous* liquor, of a fit consistence to enter the mouths of the lacteals.

Fermentation

Fermentation and Putrefaction.

FERMENTATION in itself is a thing utterly unknown to us ; and we can only become acquainted with it from its effects : we, therefore, include, in our definition, the ultimate difference it produces ; by which it is distinguished from every other operation in Nature.

Fermentation is an intestine motion, or commotion of the small, insensible particles of a mixed body, arising without any apparent mechanical cause, and producing a considerable alteration therein : or, it is an easy, slow, gentle motion of the intestine particles of a body, arising, usually, from the operation of some active matter, which rarefies, and subtilizes the softer, yielding particles thereof.

Fermentation differs from dissolution, as the latter is only a result, or effect of the former : and from ebullition, and effervescence, in that the motion, which in the first is slow, in the

two

two latter is violent; and that, in the first, the motion is restrained to the minute particles of the body, but, in the latter, it extends to large masses thereof. It is, indeed, one of the most obscure processes in all Nature: and, according to the best definition, a ferment is any matter, which, being mixed with a fermentable body, expedites the fermentation.

As for those who pretend there are particular ferments residing in the human body, it lies upon them to shew that they really exist, and have the properties of actual ferments.

Putrefaction is the most subtile of all dissolvents: it is a slow sort of corruption, produced in natural bodies, generally, by the moisture of the air, or some other ambient fluid, which, penetrating the pores, and being agitated therein, dissolves, and sets at liberty, *some of the most subtile parts*, particularly the *salts* and *oils*; and thus loosens, and dislocates, and quite changes the texture and figure of the *compages*, even to a total solution of continuity.

How much the *air* contributes to *putrefaction*,

tion, is evident hence ; that bodies buried deep under the earth, or in water, out of the reach of *air*, shall remain for ages entire ; which yet, being exposed to the open *air*, shall soon rot, and moulder away.

The perpetual *oscillations* of so elastic a fluid as *air*, contained, or shut up in the pores of the body, may be conceived sufficient to induce this alteration in its form and texture ; yet should it rather seem, that the water, or vapoury matter wherewith the *air* is impregnated, is the more immediate agent. Hence *Acosta* observes, that, in *Peru*, and others also have observed the same in *Egypt*, where it very rarely rains, every thing will continue a long time uncorrupted ; unless we should rather ascribe this effect to the abundance of *nitrous salt in the air of those places*, which is known to resist *putrefaction*.

In effect, all *putrefactions*, both of animal and vegetable bodies, are affirmed, by the learned *Boerhaave*, to be performed by means of water alone. Take, says he, a pound of fresh flesh, and keep it in a heat like that of our body, and in a few days the *putrefac-*

tion will be compleated ; but if you first drain out, or exhale all the watery part from the same, *in some chemical vessel*, though the *salt* and *oil* remain, the flesh will harden like a stone, and may be kept for ages without *putrefaction* : though, when thus hardened, water poured on it, or even the common *dew*, will soon set it a putrefying.

By such means, bread, flesh, or the like foods, may be preserved for many ages ; provided regard be had to the place. Hence it is, that, in dry countries, as *Egypt*, dead carcases never putrefy, but dry and harden uncorrupted ; as we see also in the *mummies* found buried under the sand.

Even *human blood*, which naturally is so prone to *putrefaction*, if you deprive it of its watery part, may be kept for fifty years ; as we know that of *goats* has been, for so long a time, without corrupting : though, if you dissolve it in water, and expose it to a gentle warmth, it still putrefies immediately.

The fluids of the human body are much disposed to *putrefaction*, and out of the body become highly putrid, even in cool *air*, and
without

without any stirring or agitation; and our blood, and some of our juices, stagnating within the body, change to putrid matter.

The changes wrought in bodies by *putrefaction*, are no where more remarkable, than in the *putrefaction of vegetable substances*, which, by means of this change, are brought nearly into the condition and nature of *animal substances*.

To prove this, by an easy experiment: Take a large quantity of *cabbage-leaves*, and press them hard down with weights in an open tub, with holes bored in its side; set them in a warm place, and the leaves will soon conceive a heat in the middle; and at length the whole, or nearly the whole, will be converted into a *soft, pappy substance*. This substance distilled in a glass retort, yields the same kind of *volatile salt, and oil, as animal substances do*. Neither is it particular to this plant, but all equally do this; the *acid*, and the *alkaline*; the *sweet*, and *bitter*; the *astringent*, and *emollient*. Hence we may learn how it is, that *Nature*, in our bodies, converts *vegetable* into *animal substances*: and it

is very remarkable, that not a grain of *fixed salt* can be procured from the *putrefied mass*.

Putrefaction effectually disjoins, and separates, all the component parts of putrefying bodies, except *sea-salt*. In this powerful solution, the intestine action of the minute particles of bodies creates, collects, or is, by some way or other, the cause and means of heat ; of which, *malignant* and *pestilential fevers*, with *petechiæ*, or *purple spots*, are the most frequent consequences.

Such a constitution of the air, as would naturally putrefy raw flesh, must endanger by a *mortification*.

Of the Passions of the Mind.

THE passions of the mind make one of the *non-naturals*; and are of the utmost consequence, with respect to health and disease.

In consequence of the several judgments we form concerning objects, as either good or evil; the organs of sensation and motion, that is, the *nervous fibres*, are variously impressed and stimulated: whence arise certain *sensations*, and certain *modifications* of motion; which, it is apparent, are *reciprocal*, and follow *mutually* from each other, whether the impression be supposed first made on the *body*, or on the *mind*: that is, any strong, violent motion, made on the *organs*, will excite a *painful sensation in the mind*; or any such *painful sensation* first excited in the mind, from the bare consideration of an object, will impress a violent motion on the *organs*. And, on the contrary, an *easy, placid undulation*, im-

pressed originally by the actual impulse of objects, will excite a *pleasurable sensation in the mind* ; or a pleasurable sensation excited in the mind, from the mere contemplation on an object, will be followed with a like *easy, placed undulation of the organs*.

The *painful passions*, then, as well as *bodily pain*, impress the *nervous fibres* with a violent motion, which brings them alternately into forcible contractions, and dilatations ; or strengthens, and increases their *muscular force, and action*. While, then, this pain, or uneasiness of desire, annexed to the *passions*, and impressed on the *nerves*, is moderate, and restrained within the bounds of *Nature*, such stimulating desires have a good effect ; as they strengthen muscular motion, keep up the *circulation of the blood*, promote the natural *secretions*, and excite a man to those actions and exercises, wherein animal life, health, and vigour, consist. But where the uneasiness annexed to the passion is too violent, such a continual *stimulus* will gradually derive a too great proportion of blood to the stimulated organs, by which the vessels will be over-
stretched

stretched and distended, their muscular force will be gradually impaired, and the *equilibrium* of the blood and juices will be interrupted: and hence, from a mere painful sensation, will arise a complicated train of bodily illnesses, and pains; in consequence of the established laws of the union and communication of mind and body.

Again, while we are wearing off the uneasiness of desire annexed to any passion, we feel a sensible pleasure or agreeable emotion; and the organs hereupon falling into easy, uniform, placid undulations, the too great current of the blood towards them is diverted, and the *equilibrium* is restored.

As soon as the uneasiness is all gone, the pleasure ceases, and terminates in mere indolence, which disposes the person to rest and inaction; till fresh desires returning, stimulating again to farther action, renew the same succession, and interchangeable series of pain and pleasure. And this is the circle of animal life: as the stimulus of desire throws off the indolence of rest, and excites to action; so the gratification moderates the pain of desire,

creates a pleasure at first, and then terminates in the former indolence and inaction ; till fresh desires returning, stimulate to farther action, and continue the same round.

Dr. *Cheyne* divides the passions into *acute* and *chronical* ; after the same manner, and for the same reason, as diseases are so divided.

The acute passions, whether pleasurable or painful, he observes, have much the same effect, and operate after the same manner as acute diseases do. They produce a brisk circulation of the fluids, and constrict the solids for some short time. Thus, sudden gusts of joy, or of grief, stimulate the *nervous fibres*, and the coats of the *animal tubes*, and thereby give a greater celerity to their included fluids ; and the functions of the heart and lungs, being involuntary, they have their more necessary effects in them. Thus both sudden joy and grief make us breathe short and quick, and render the pulse small and frequent : though retaining our breath some time, to reflect more intensely on a painful object, forces at length a strong expiration, which becomes a *sigh*. Thus a sudden painful idea, making
a quick

a quick circulation, and thereby throwing a great quantity of blood upward, makes it appear in the superficial vessels of the face, neck, and breast, and so produces a *blush*. The same principles will account for the effects of *fear*, and *anger*, which makes us change colour, and look red, or pale, as the blood is accelerated, or retarded in its course. Sudden and great fears do so convulse the *nervous system*, that they sometimes alter the position of the parts: thus the hair will stand an end in a fright; and the nerves be rendered so stiff and rigid as to stop at once the *animal functions*; whence fainting, and, sometimes, even death.

Chronical passions waste the nervous system gradually. Those *nerves* employed in considering, brooding over, and fixing such a set of ideas in the imagination, must be at length worn and impaired; and the rest, by disuse, rendered resty and unactive; lifeless, and destitute of a sufficient flux of warm blood, and due nourishment. Thus do long grief, dark melancholy, hopeless love, over-weening pride, &c. impair the habit; and sometimes,

when long indulged, terminate in *madness*. The reason is, that a constant habit of fixing one thing in the imagination, begets a ready disposition in the nerves to produce again the same image, till the thought of it becomes spontaneous, and natural; like breathing, or the motion of the heart.

Dr. *Morgan* seems to have gone beyond any body in explaining the origin, and effects of the passions. From a course of actual observations of the several *phenomena* in the body, which attend the several passions, viz. the state of the pulse, respiration, warmth, digestion, &c. that author draws the following conclusions :

1. That the grateful and pleasurable passions raise the vital tide, strengthen and quicken the pulse, diffuse the natural heat, and take off any antecedent stimulus, or pressure upon the *abdomen*, and inferior organs: and, on the contrary, the painful passions sink and depress the blood, weaken the pulse, recal and concenter the natural heat, and fix a stimulus, or compression, on the inferior organs.

2. All

2. All the passions impress their characteristic sensations or modifications of *pleasure* and *pain*, especially upon the œsophagus, and upper orifice of the stomach.

3. That they impress the different modifications, of pleasure and pain, on the muscles of the larynx, and thus discover themselves by the different modulation and tone of the voice.

And hence he infers, that the nerves of the eighth conjugation, or *par vagum*, are the principal instruments of the passions; by means whereof they are variously impressed, modified, and organized. These, therefore, which are dispersed to all parts of the breast, and abdomen, particularly to the heart, lungs, stomach, liver, œsophagus, diaphragm, intestines, the organs of generation, &c. he considers as *pathetics* of the first order: the *intercostals*, which accompany all the divisions of the *par vagum*, he calls *pathetics* of the second order: the nerves which serve the muscles employed in respiration, and have the nearest communication with those of the *par vagum*, by means of the *intercostals*, he calls
pathetics

pathetics of the third order : and the nerves, which immediately dispense sense and motion to the several parts of the head, and have a remoter communication with the *par vagum*, *pathetics* of the fourth order.

It follows, that the *pathetics* of the first order will be first affected in the passions, and that with the smallest degree of impressed motion ; with which the parts, communicating with the second order, are affected almost at the same time ; and then the nerves employed in the muscles of respiration, become likewise affected ; and, lastly, the organs of sense and motion in the brain itself, by which sensation and imagination are performed, and put into a forcible emotion, whereby the ordinary operations of sense, judgment, &c. are much disturbed.

The gradual rise, and progress of the passions, is confirmed by fact, observation, and experience ; but how they are generated, and by what steps they make these advances, it requires some farther consideration.

It may be observed, then, that the quantity of motion impressed on the pathetic nerves in
any

any passion, is always proportionable to the strength of the desire ; but such impressed motion is not always uniform, or equally diffused through the whole pathetic system : for, as the largest, and most numerous branches, of the pathetic nerves, are spent on those parts which derive their blood from the descending trunk of the *aorta*, viz. the stomach, spleen, kidneys, &c. upon any motion, too forcibly impressed, or too long continued, these organs are the first, and greatest sufferers ; whence, the blood flowing impetuously, and irregularly, to the parts thus stimulated, they become over-stretched ; and hence arises a sense of pain, weight, and oppression. By this means, also, the head, and superior parts, being deprived of their due share of blood, the pulse must sink, the natural heat diminish, and retire, and a sense of cold, and constriction, be felt about the *œsophagus*, where the branches of the *par vagum* are very numerous : and hence the patient will be excited to sigh, groan, moan, cry out, and complain ; and will discover it in the tone of the voice, and modulation of the muscles of the larynx, the characteristics of the prevailing passion.

Such

Such is the state of Nature under the painful passions, where the strong desire of good is attended with an appearance of difficulty, or impossibility. Where the same desire is attended with a seeming probability of obtaining, or effecting it; this appearance, by moderating the intenseness of the pain of the desire, and taking off the violent action of the pathetic nerves on the inferior organs, puts the pathetic system in an easy, natural, uniform undulation; by which the *equilibrium* of the blood being restored, the pleasurable passions of love, joy, hope, &c. will be raised: and in this case the pulse will rise, and the natural heat will be diffused; and, by the action of the pathetic nerves on their proper organs, the several symptoms will be produced, which discover their placid emotions. Where the desire is very keen and, intense, we see what a prodigious force it will impress on the nerves, by the actions of *madmen*, and men in a fright. In this case, the stimulus of desire being exceeding strong, and the impressed motion universal, the pathetic nerves of the fourth, or last order, come to be af-

affected ; that is, the organs of sensation, and imagination, in the brain, are brought into such violent vibrations, as to disturb the operations of reason.

From this violent perturbation of the pathetic nerves in the brain, *mad-men* have their imagination as strong and vivid as sensation itself.

Hence, also, we may observe the heights, or extremes of the two contrary, painful and pleasurable, passions : the one rising at length into a *mania*, or raving madness ; and the other sinking into an *hypochondriacal melancholy*. The principal seat of one is the brain ; and the other, the viscera of the abdomen, especially the spleen, and mesentery. The one inflames and over-heats, the other chills and freezes, the imagination : the one hangs over the understanding, like a glaring, dazzling light, which animates, and leads us on with zeal and vehemence ; the other, like a thick, black, and dismal cloud, that sinks all the powers of Nature into the depths of *misery* and *despair*.

Hæmorrhages

Hæmorrhages.

NATURAL hæmorrhages comprehend bleeding at the nose, spitting of blood, the fluxes of the hæmorrhoids, and menses, the lochia in lying-in women, vomiting of blood, and voiding bloody urine.

An hæmorrhage by the bowels is most usually called a dysentery.

A plethora, violent commotions of the body, hot foods and liquors, heat of the weather, and sudden cooling of the body after violent heat and passion, are among the principal causes.

Hypochondriac, scorbutic, and chachectic persons, are liable to various, and immoderate hæmorrhages.

The cure of hæmorrhages, arising from a plethora, is by evacuants, and particularly phlebotomy, to cause a revulsion: but when a thin acrimonious blood increases the velocity, coolers and agglutinants are the proper remedies.

The

The principal simple remedies in hæmorrhages, are the *spirit*, or *oil of vitriol*, *chalcantum rubefied*, *colophony pulverized*, *oil of turpentine*, *decoction of catechu*, and *cortex Peruvianus*.

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Revulsion.

Revulsion.

REVULSION is the turning a flux of humours from one part of the body to another.

In very dangerous wounds, where the loss of blood is great, and the stopping of it speedily enough is impracticable, it is usual to open a vein in some remote part, to cause a revulsion ; that is, to turn the course of the blood, from the former part, to that where the aperture is made.

Derivation differs from revulsion only in the measure of the distance, and the force of the medicines used : if we draw it to some very remote, or contrary part, we call it Revulsion ; if only to some neighbouring place, and by gentle means, we call it Derivation.

In violent, hot, raging, estuating fevers, when the acrid, fervent, boiling blood, gets ahead, and tumultuously breaks in upon the brain, and accends the spirits, and drives them
into

into distraction, and fury ; thereby exciting in the head, ardor, hissing, humming, crackling, unexplicable conturbation, frightful fancies, terror, frenzy, delirium, and watching : a pedilave, in such case, of warm water, useth to bring great relief ; forasmuch as it inclines the motion of the blood downwards, into the inferior parts ; and at the same time does not enkindle or flutter it e'er the more, but rather, on the contrary, refrigerates and quiets it.

There are two, perfectly distinct, great provincial circles of the blood : one by the ascending artery, through the parts situate above the heart ; and the other by the descending artery, through the parts below. By how much the more rapidly, therefore, the blood rusheth through the inferior province, by so much the more placidly, and with less current, of necessity, will it flow through the opposite superior province ; and so on the contrary. And upon this foundation is grounded the rational doctrine of universal revulsion.

Herm. Vander Heyden faith, in violent
L 2 bleeding

bleeding at the nose, when the blood hath issued forth in the manner of a torrent, the speediest, and most certain remedy (when all other means have failed) hath been, to put the patient's feet in warm water, as far as to the very knees; as it happened to one that was at the very point of death, whence, by the trial of this experiment, he was happily recovered, when both his legs and thighs, for want of blood, had now grown cold: and no marvel, for, his blood flying up to his head, he had lost no less than 18 pints of it at the nose, as by most exact observation was found. And *Vigo* advises the same in a *quinsey*.

Inflammation.

Inflammation.

THE immediate cause of an Inflammation is an excess, or overflowing of blood, in the part affected: other more remote causes, may be the density, and coagulation of the blood; or the relaxation and contusion of the fibres. It is attended with a preternatural heat, and redness, tumor, tension, and other fluctuous complaints, arising from an accelerated progressive motion of the blood, and a general obstruction and diminution of the glandular secretions: i. e. a part of the lymph, or serum of the blood, which ought to be continually drained off by the glands, is, during this preternatural heat, or fever, so retained in, and closely united to the mass, that it circulates together with it in the veins and arteries, till concoction, fluctuation, suppuration, or other natural excretion, shall critically, effectually, and salutarily, exterminate the cause of this malady.

Boerhaave observes that a fever is an inseparable companion of an inflammation; and summarily comprehends the cure, in correcting the sharp, irritating, febrile matter; dissolving the lentor, and mitigating the symptoms.

Inflammation, and fever, are therefore considered as terms synonymous, whether the body be partially, or totally affected; and to what causes, or how many it is assignable, and whether the crisis be formed externally or internally, by the hand of the surgeon or the physician, it makes no difference.

A late author is of opinion, that the *ophthalmia*, *angina*, *phrenitis*, *peripneumonia*, *pleuritis*, *hepatitis*, *nephritis*, and *rheumatismus*, have all the same characteristic, and differ in nothing but the part affected: so that, if one has a right knowledge of an inflammation on an external part, its progress, and proper remedies, and at the same time is thoroughly acquainted with anatomy, and the animal œconomy, he cannot be at a loss to distinguish, and treat any of the diseases belonging to this class.

The Lochia.

THE *Lochia* is a flux of blood and humours from the *uterus*, after the exclusion of the *fœtus*; drained off from that organ, as from a wet compressed sponge, by a contraction of its fibres.

At first, the flux is almost pure blood; afterwards it is more diluted, appears more yellow, becomes pale and watery, diminishes, and, at length, totally ceases.

This is the state of the *lochia*, according to Nature, after a perfect delivery; in which there is no need of a physician's aid.

But, in plethoric habits, and persons subject to violent passions, such as are used to drink wine, or other strong liquors, eat high-seasoned foods, have omitted customary bleedings during gestation, or have taken violent medicines to promote delivery, or where part of the *secundines* are retained, it is very different: for, in all these cases, there is usually a

profluent discharge of the *lochia*, which requires the best judgment, and the strictest attention.

In order to prevent an immoderate flux of the *lochia*, frequent bleeding, during the time of pregnancy, is found useful: and, if necessary, it may be done even just before the delivery. Proper ligatures for the belly, after the exclusion of the *fætus*, are also of great service in this view; and the keeping perfectly quiet, and avoiding much talking, are greatly conducive thereto.

Women in child-bed are to be considered as wounded persons, in whom fevers are very easily brought on; and, therefore, every thing that makes any commotion of the blood is to be carefully avoided.

Medicines, which have the power to quiet the violent commotions of the blood, are to be often repeated; such as *nitre*, *the alkaline absorbents*, *calx of antimony*, &c. *Tinct. Thebaic.* may be given occasionally, *orange-wohey*, &c.

Gentle perspiration, by these means, will be obtained, and kept up nine or ten days; in
which

which time the patient is generally supposed to be out of danger.

Fluxes of the *lochia* attending *abortives*, are usually more dangerous than those that follow natural births. They are to be treated, however, when immoderate, by the same means as are used in violent fluxes of the *menfes*.

When the breasts are painful, at the coming of the milk, the *lochia* commonly stop; but flow again, as soon as the pain ceases. In this case the *thebaic tincture*, and that of *saffron*, mixt, has very often proved a successful remedy.

There is no kind of *hæmorrhage*, in which a suppression is attended with so great, or such imminent danger, as this of the *lochia*. The natural suppressions are, usually, either from an over-quantity of blood, with a spissitude of it, or from a turgescence and violent emotion of it. The persons subject to these suppressions are principally those of a plethoric habit, and whose veins are small; and such as are of a desponding disposition, and easily subject to fear, sorrow, and the like passions.

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The following medicines greatly conduce to the promoting the *lochia*, viz. all preparations of *myrrh*, *saffron*, *borax*, *castor*, *zedoary-root*, *calx of antimony*, *opium*, *aristolochia*, and all *emmenagogues*.

Menses.

Menses.

THE Menses make one of the most curious, and difficult phenomena, in the whole human body; for the explanation whereof many hypotheses have been framed, though the matter is yet scarcely ascertained.

It is generally agreed by all, that the necessity women are under for some extraordinary supply to compensate the expence, and support them during the time of *gestation*, was the final reason why this redundance at other times was given them. But this is all they agree in. Some, not content with this occasion alone, will have the *menstruous blood* offend in quality more than quantity; when they argue from the pain it gives many women in the evacuation. They add also, that its *malignity* is so great, that it excoriates the parts of men by mere contact; that the *breath* of a *menstruous woman* will give a permanent stain to *ivory*, or a *looking-glass*; that a little of the
blood,

blood, dropped on any vegetable, blasts, or renders it sterile ; that, if a pregnant woman be defiled with the menses of another woman, she miscarries ; that, if a dog tastes them, he runs mad, and grows epileptic : all which, with many more fables of the same kind, though related by great authors, *Dr. Drake* rejects, as too ridiculous to need a refutation.

Others ascribe this effect to an imaginary dominion of the *moon* over the bodies of women. This was formerly the prevailing opinion ; though the smallest reflection would have shewn the weakness of it : for, had this purgation been owing to the influence of the *moon*, all women, of the same age and temperament, would have found it at the same periods and revolutions of the *moon*, i. e. at the same time ; which all experience shews to be false.

There are two other opinions, which carry with them great probability, and are argued with a great deal of strength and reason : in both which, the quality of the blood is allowed to be innocent ; but they still differ about the reason of its issue. The former is
that

that of Dr. *Bohn* and Dr. *Freind*; who maintain this flux to be the result of a *plethora*, or plenitude; and to be evacuated only for relief against the quantity.

Dr. *Freind*, who has maintained the cause of a *plethora* with the greatest strength and clearness, supposes, that this *plethora* arises from a coacervation in the blood-vessels of a superfluity of aliment, which, he thinks, remains over and above what is expended in the ordinary ways; and that women have this *plethora*, and not men, because their bodies are more humid, and their vessels, especially the extremities of them, more tender, and their manner of living generally more inactive, than that of men; and that these things concurring, are the occasion that women do not perspire sufficiently to carry off the superfluous alimentary parts, till they be accumulated to such quantity as to distend the vessels, and force their way through the *capillary arteries* of the *uterus*. It is supposed to happen to women, more than the females of other species, which have the same parts, because of the erect posture of the former, and the *vagina*,

gina, and other canals, being perpendicular to the *horizon*; so that the pressure of the blood is directed towards their orifices: whereas, in brutes, they are parallel to the *horizon*, and the pressure wholly is on the sides of those vessels. This discharge, he thinks, happens in this part rather than in any other, as being more favoured by the structure of the vessels; the arteries being very numerous, and the veins sinuous and winding, and therefore more apt to retard the impetus of the blood; and consequently, in a plethoric case, to occasion the rupture of the extremities of the vessels, which may last, till, by a sufficient discharge, the vessels are eased of their over-load.

This is the substance of Dr. *Freind's* theory; from whence he very mechanically, and very philosophically, accounts for the symptoms.

To this argument, why women have menses rather than men, we may add, from *Boerhaave*, that, in the former, the *os sacrum* is wider, and stands farther out, and the *os coccygis* farther in; the *ossa innominata* wider,
and

and farther apart, and the lowest of them, as well as the lower eminences of the *os pubis*, farther outwards than in the latter. Hence, in women, the latitude or expansion about these bones, and the capacity of the *pelvis*, is vastly great in proportion to those of men; and yet, in a woman not pregnant, there is not much to fill this expanse. Again, the fore-side of the thorax is smoother in women than in men, and the *blood-vessels*, *lymphatics*, *adipose*, and *nervous vessels*, *membranes*, and *fibres*, are much laxer in women than in men: whence all their cavities, cells, vessels, &c. are more easily replenished, and the humours aggregated in them; besides that they are found to perspire less than men, and to arrive much sooner at their maturity. To which he adds the consideration of the soft, pulpy texture of the *uterus*; and the vast number of veins and arteries it is filled withal.

Hence, an healthy maid, being arrived at her growth, begins to prepare more nutriment than is required for the support of the body; which, as there is not to be any farther accretion, must, of necessity, fill the
vessels,

vessels, and especially those of the uterus and breasts, they being the least compressed. These will be dilated more than the others; whence the lateral *vascules* evacuating their humour into the cavity of the *uterus*, it will be filled, and extended. Hence a pain, heat, and heaviness, will be felt about the *loins*, *pubes*, &c. the vessels of the *uterus* at the same time will be so dilated, as to emit blood into the cavity of the *uterus*, and its mouth will be lubricated and loosened, and blood issue out. As the quantity of blood is diminished, the vessels will be less pressed, and will contract themselves again closer, so as again to retain the blood, and let pass the grosser part of the serum; till at length only the usual serum passes. Again, there are more humours prepared, which are more easily lodged in vessels once dilated; and hence the menses go and return at various periods in various persons.

This *hypothesis*, however plausible, is opposed by Dr. *Drake*, who maintains, that there is no such repletion, or, at least, that it is not necessary to menstruation; arguing, that,

that, if the menses were owing to a *plethora* so accumulated, the symptoms would arise gradually, and the heaviness, stiffness, and inactivity, necessary symptoms of a *plethora*, would be felt before the period were completed, and women would begin to be heavy and indisposed soon after evacuation, and the *symptoms* would increase daily ; *which is contrary to all experience* : many women, who have them regularly and easily, having no warning, nor any other rule to prevent an indecent surprize, than the measure of the time ; in which, some that have slipped, have been put to confusion and shifts, no ways consistent with the notice a plethoric body would give. He adds, that, even in those who are difficultly purged this way, the symptoms, though very vexatious and tedious, do not make such regular approaches, as a gradual accumulation necessarily requires. If we consider what violent symptoms come on in an hour, we shall be extremely puzzled to find the mighty accession of matter, which should, in an hour or a day's time, make such great alterations. According to the *hypothesis*,

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pothesis, the last hour contributes no more than the first, and, of consequence, the alteration should not be greater in the one than the other ; setting aside the bare eruption.

This is the substance of what is argued against Dr. *Freind's* theory ; which, it must be owned, notwithstanding these objections, is still the most rational and consistent that has yet been advanced.

Those who oppose it, give into the doctrine of *fermentation*, and maintain the evacuation of blood in those parts, to be the effect of an *effervescence*, or *ebullition* of the *blood*. This opinion has been maintained by many, particularly Dr. *Charleton*, *Bale*, *De Graaf*, and *Drake* ; the two first of whom suppose a ferment peculiar to the women, which produces this flux, and affects that part only, or at least principally. Dr. *Graaf*, less particular in his notion, only supposes an effervescence of the blood raised by some ferment, without assigning how it acts, or what it is. The sudden turgescence of the blood occasioned them all to think, that it arose from something till then extraneous to the blood, and

led them to the parts principally affected to seek for an *imaginary ferment*, which no anatomical enquiry could ever shew, or find any receptacle for, nor any reasoning necessarily infer. *Again*, that heat, which frequently accompanies this turgescence, led them to think the case more than a *plethora*, and that there was some extraordinary *intestine motion* at that time.

Dr. *Drake* improves on the doctrine of a ferment; and contends, not only that it is necessary there should be a ferment, but a receptacle also for this ferment: concluding, from the suddenness and violence of the symptoms, that a great quantity must be conveyed into the blood in a short time; and, consequently, that it must have been ready gathered in some receptacle, where, while it was lodged, its action was restrained. But he goes farther still, and pretends to ascertain the place, &c. both of the one and the other, making the *gall-bladder* to be the receptacle, and the *bile* the ferment. This liquor he thinks well adapted to raise a fermentation in

the blood, when discharged into it in a quantity; and, as it is contained in a receptacle that does not admit of a continual issue, it may be there reserved, till, in a certain period of time, the *bladder* becoming turgid and full, through the compression of the incumbent *viscera*, it emits the gall; which, by the way of the *laeteals*, insinuating itself into the blood, may raise that *effervescence*, which occasions the aperture of the *uterine arteries*.

To confirm this, he alleges, that persons of a bilious constitution have the *menfes* either more plentifully, or more frequently, than others; and that distempers, manifestly bilious, are attended with *symptoms* resembling those of women labouring under difficult *menstruation*. If it be objected, that, on this footing, men should have *menfes*, as well as women, he answers, that men do not abound in *bile* so much as women; the pores of the former being more open, and carrying off more of the serous part of the blood, which is the vehicle of all the other humours; and,
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consequently, a greater part of each is discharged through them than in women, wherein the superfluity must either continue to circulate with the blood, or be gathered in proper receptacles; which is the case in the *bile*.

The same reason he gives why menstruation should not be in *brutes*; the pores of these being manifestly more open than those of women, as appears from the quantity of hair which they bear; for the vegetation whereof, a large cavity, and a wider aperture of the glands, is necessary, than where no such thing is produced: yet there is some difference between the *males* and *females* even among these, some of the latter having their *menfes*, though not so often, nor in the same form and quantity, as women.

He adds, that the several *phenomena* of the *menfes*, whether in a natural, a regular, or diseased case, flow naturally and readily from this *hypothesis*; and that whatever may be accounted for from a *plethora*, or from any particular *ferment*, may, without any straining, be applied to this.

The root of *black bellebore*, and *steel*, are the principal remedies for obstructions of the *menfes*: the former is almost infallible, and in many cases where the latter is not only ineffectual, but improper, as in plethoric habits; for, with such, *steel* will sometimes raise *hysteric* commotions, convulsions, and a kind of *uterine furor*; whereas *bellebore* thins the blood, and disposes it for a discharge, without making it more impetuous: so that though both provoke the *menfes*, yet they do it by different ways; *steel* by increasing the blood's velocity, and giving it a greater moment against the *uterine* arteries; and *bellebore*, by dividing it, and rendering it more fluid.

But, likewise, the menstrual discharges frequently run to excess. In that case, the flux is to be restrained; which, after letting blood, is effected, both by those medicines which condense and inspissate the blood, and by those which allay its heat. Of the first sort, the principal are such as participate of *vitriol*, or *alum*; especially the *tincture of roses*; or a powder compounded of *alum* three parts, and
dragon's

dragon's blood one part, melted together. But the heat of the *blood*, and its consequence the flux, is more powerfully checked by the *Peruvian bark*, than by any other medicine whatsoever.

The Pleurisy and Peripneumony.

AN inflammation of the integuments of the inside of the *thorax*, whether it be the *pleura* or *mediastinum*, is called a *pleurisy*; of the *diaphragm*, a *paraphrenitis*; and of the substance of the lungs, a *peripneumonia*.

A *pleurisy* and *peripneumony* have some resemblance in their general symptoms, and are thence sometimes mistaken one for the other.

They are both attended with an acute, continuous, and inflammatory fever, by means of which *Nature* is labouring to break through the obstruction made by the stasis of the blood in those parts; a pain in the side, a cough, and a difficulty of breathing.

A vertiginous disorder of the head precedes all other *symptoms*, which is succeeded by a shivering and chillness all over the body: this increases by degrees, and usually brings on *cardialgias*, *nauseas*, and *anxieties*: after this there comes on a remarkable heat, with
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an intense thirst, and a violent pain in the head: this is accompanied with a straitness of the breast, a pricking pain, and difficulty of respiration, which is greatly exasperated by the *cough*.

In the *peripneumony* the pain extends farther than in the *pleurisy*, and affects the whole breast; which makes the principal distinction between these two distempers.

These diseases are not equally common to all ages, but they principally affect young people, and such as are of a sanguine, plethoric habit; and, mostly, in the spring season.

They are naturally brought on by immoderate exercises, and cooling too hastily after violent heats, as by drinking cold water, lying in the open air, &c. The neglect of habitual bleedings may also occasion them.

The great remedy is *copious* and *repeated bleedings*; by the omission of which the patient is frequently *suffocated*. The rule is to let blood so long as the indications of a *hard pulse*, a *troublesome cough*, and an *uneasy respiration* make it necessary; or till a *stixiness* appears no longer on the top of it.

Cooling clysters, emollient fomentations, and bathing the feet and legs in warm water, are excellent means to resolve, soften, and loosen the *rigid fibres*, and dissipate the humours which were the first causes; and these, with the assistance of warm diluting drinks, and some of the fixed salts neutralized with acids, taken warm also every three or four hours, with some gentle expectorants between whiles, and the use of a slender diet, are the safest, and most certain means to keep the body soft and moist, mitigate the cough, make expectoration easy, help the breathing, assuage thirst, and render the discharges free by stool and urine, whereby numberless ill effects attending these violent distempers are guarded against, and relapses with a great degree of certainty prevented.

These two diseases are to be carefully distinguished from other spurious ones. In the true pleurisy and peripneumony a pain is felt about, or a little below the nipple; but in those which are spurious, it is higher, and usually about the clavicle. In the genuine diseases, the pains are equal and regular, answering

swering to the pulse; in the spurious, they are vague, and wholly irregular. In the true, they are also continual; but in the spurious, they have frequent intermissions and remissions. The true have always a cough attending them, with a spitting of *coloured matter*, often *streaked with blood*; but the spurious often have no cough at all, or, if they have, there is no difference seen in the matter voided by spitting. The true have always an acute continuous fever, which attacks the patient at first with a shivering; the spurious either have no fever at all, or but a slight irregular one.

They are cured by *bleeding, clysters, thin diet, diluters, abstersgents, and aperients*.

A late celebrated writer notifies a *peripneumony* to be the last fatal symptom of every disease; for nobody dies without a stagnation of blood in the lungs, which is the total extinction of breath.

Para-

Paraphrenitis.

THIS is a fecondary kind of *phrenzy*, fupposed, by the antients, to be owing, not to any immediate diforder of the brain, or meninges, but to an inflammation of the ventricle and the liver, and efpecially of the *diaphragm*, whereby the brain and meninges come to be affected by confent of parts.

The ancients called it a *pſeudo-phrenesis*, falſe phrenzy; to diſtinguiſh it from the true one, which they made to conſiſt in an inflammation of the brain and its meninges.

Among modern phyſicians, *paraphrenitis* is ſometimes uſed for an inflammation of the *mediſtinum*, or *pleura*, about the *diaphragm*; attended with a continual fever, and exquisite pain in the parts affected, on contracting the abdominal muſcles; as alſo a *delirium*, and a riſing of the *hypocondria*.

This diſeaſe is always attended with a moſt violent, and painful *cardialgia*; inſomuch
that

that the patient cannot bear the least touch of a finger on the region of the breast or stomach. It always brings on a tumor of the *præcordia*, and an alienation, or roving of the *mind*; which is perceivable in the words and actions of the patient, but not in so great a degree as in the true phrenitis. The respiration is interrupted by frequent sighings: belchings are very frequent, as also the discharge of a black matter by vomit. The mouth is dry and parched, and the tongue very white and furred; and there is, at the same time, a great thirst.

The most frequent causes of this, are a sudden translation of the morbid matter in fevers, to the *diaphragm*; a suppression of natural hæmorrhages, by the nose, the hæmorrhoidal vessels, or by the menses; an omission of habitual bleedings, and the drinking of cold liquors when the blood is over-heated by exercise; and, finally, a translation of the matter of a *quinsey* to this part.

This is a most dangerous malady: yet sometimes the matter which caused the obstruction is easily discolled; and sweats, happening

pening on the critical days, carry off the distemper. And sometimes the morbid matter is resolved, and in length of time translated to the joints, where it brings on either the *gout*, or *erysipelatoſe disorders*. But, most commonly, it preſages a *gangrene*, which is preceded by violent *hiccoughs*, *coldneſs of the extremities*, and *clammy ſweats*.

When the patient is of a *plethoric habit*, bleeding is extremely neceſſary; and ſometimes, where the *ſymptoms* require it, may be repeated to the third time: and, if the peccant matter remains in the *primæ viæ*, a gentle *emetic* is to be given, with the *digestive medicines* after it. Twenty drops of the *miſtura ſimplex* may be given, in a doſe, every four hours, in the morning; and, in the afternoon, powders of *nitre*, with *vitriolated tartar*, and *crab's eyes* ſated with *juice of lemon*. Beſides theſe, there may be applied, externally, to the breaſt and back, *plaiſters* with a large portion of *camphor*; *ſinapiſms* and warm *cataplaſms* to the ſoles of the feet. Stimulating *clyſters*, and acrid *ſuppoſitories*, have alſo their uſe in this caſe; and the application

cation of *leeches* to the hæmorrhoidal veins, in people, especially, who have been subject to discharges from thence, is very often of singular service. All the while, there must be kept up a gentle transpiration, either by copious draughts of warm and weak liquors, or by lightly acidulated medicines.

Apoplexy.

Apoplexy.

THE quick event of *Apoplexies* is owing to a sudden abolition of the power of action, in all the external and internal senses, from any cause sufficient to prevent the flux and reflux, to, and from those organs : whatever, therefore, presses upon the *arteries* and *nervous vessels* of the *brain*, so that neither the *blood*, nor *spirits*, can flow through them, is the common cause of an *apoplexy*.

The fatal stroke of this distemper often happens to persons in their best health, without any warning ; and it is sometimes so very sudden, and instantaneous, that *life* and *death* may be said to be in the very same moment of time. Doctor *Thorpe* witnessed this circumstance, in the death of Lord *Vane*, Anno 1734 ; and said it could be compared to nothing so quick, but a flash of lightning. I had the melancholy account given me, soon after it happened, by the Doctor himself :
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That this Lord, and he, a-while before dinner-time, were walking in a long room at *Fair-Lawn*, in *Kent*, a few days after the election for that county, whilst his Lordship was giving him a relation of particulars on that occasion: that, in the midst of his discourse, without the least stop, or hesitation, he fell down dead—*dead*, said he, before he touched the floor.

The *Doctor* lamented that the use of the *lancet* could not be experienced, till some distance of time after this happened; which rendered the use of it, as well as all other means to restore life, ineffectual.

In dissecting persons dead of *apoplexies*, clotted extravasated blood is usually found in one, or both ventricles of the brain.

Hippocrates distinguishes two kinds of *apoplexies*, the one strong, the other weak; only differing in the greater, or less difficulty of respiration, and pulsation. In the former, the pulse and breath seem almost entirely stopped; in the latter there are considerable remains of them.

The more modern authors distinguish apo-

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plexies

plexies, from their cause, into sanguineous, and pituitous: to which may be added, lymphatic, polypous, ferous, atrabiliary, &c.

During the fit, copious bleeding in the *jugulars* is to be put in practice without delay, that the circulation may be kept open and free; whereby the arteries will have their full force and action, to overcome the obstructing cause; and without which all other remedies are of no effect.

The next means is by *clysters*, to empty the bowels; without adding any violent stimulus at first. The common decoction, with *soap*, *honey*, and common *salt* dissolved, is sufficient.

Mean time the head must be shaved, and embrocated well with warm *vinegar*; and the steam thereof received plentifully into the *mouth* and *nostrils*, by means of a piece of sponge dipped therein. A stupe wrung out of hot *vinegar*, also, is to be applied to the *scrobiculum cordis*; and renewed occasionally. Some *spiritus nitri dulcis*, dropt on sugar, is to be put into the patient's mouth frequently.

If the patient recovers from the fit, *nitre*,
and

and the *neutral salts*, should be given very freely, to cool, and attenuate the blood, interposing gentle purges from time to time : and, to prevent a relapse, an abstemious thin diet should be strictly enjoined ; with a perpetual blister, or seton in the neck ; or interscapulary issues, with frequent bleeding.

The *pituitous*, or *serous apoplexy*, which chiefly affects those of a cold, and *phlegmatic constitution*, requires a very different treatment. *Bleeding* must be sparingly used, except in the fit ; the intention of the cure being to attenuate the viscid heavy fluids, promote the absorption of the serous watery matter in the *ventricles* of the *brain*, and carry it off by the common emunctories. Aromatic, warm, stimulating *medicines*, are necessary afterwards, to mend the *blood*, and strengthen the *constitution*.

These views are to be obtained by stimulating *clysters*, and brisk purges ; by blisters to the back, thighs, and legs ; and, lastly, to the *head* : by stimulating *cataplasms* to the feet, and such kind of medicines to the *nose* also : finally, by *vomits*, *apophlegmatics*, *issues*,

setons, &c. to prevent a relapse, and drive the humours from the *brain*.

To correct, and give a brisk circulation to the *blood*, *volatiles*, and other warm medicines, must be freely taken; as *valerian*, *mustard-seed*, *winter's bark*, *horse-radish*, either given in substance, or strong infusion: for this purpose the *gum pills*, with *arum-root*, *cinnabar*, &c. may be directed, with a warm purge between whiles: the body should never be costive, but kept open with *pil. Ruffi*. or *tinct. sacra*; and the diet should be generous.

The Gout.

THE *Gout* is a painful illness occasioned by a flux of sharp humours, creating a vitiated temper in the smallest nervous vessels, and their fluids.

Its nearest origin is from an indigestion in the bowels, whereby the aliments are not sufficiently attenuated to supply the nerves with juices proper for them.

It may be considered as a periodical, and critical *paroxysm*, tending to free the body of an offensive and corrosive matter, by throwing it upon the extremities; breathing it out insensibly, or comminuting it so as to render it harmless, or capable of circulating freely along with the juices, till, by collecting again, gradually increasing, and separating from the blood, it causes another *paroxysm*.

The *gout* may be hereditary, or natural to the constitution, proceeding from a too great constriction of the capillary vessels;

whence the morbid cause is more easily lodged, or detained therein : or it may have its origin from *high living, crapulas, a sedentary life, obstructed perspiration, and a suppression of the natural excretions.*

It is observed that young people are seldom troubled with the *gout*, unless it be hereditary ; and that it rarely attacks before the patient is thirty-five, or forty years old, and sometimes not till the decline of life ; and that the corpulent are more subject to it, than those who are spare, and lean.

A cold shivering usually precedes this malady, and generally a fever accompanies its first appearance ; which soon goes off, and returns by intervals.

The progress of this disease is most commonly from the *great toe*, where it usually fixes, to the *tarsus* and *metatarsus* ; immediately affecting the *tendons, nerves, membranes, and ligaments*, about the joints ; and, by distending, and irritating the parts, it causes a violent pain, not unlike that of a dislocated bone, which increases towards night, and decreases towards morning ; and hence arises an
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inflammation, and swelling, which increases as the pain increases, with a violent tension, and, as it were, a laceration of the ligaments : and sometimes it is represented like the biting, or gnawing of a dog, with an intolerable *squeezing*, or *coarctation*. At the same time, the part affected has such an exquisite sense, as not to be able to bear the least weight of bed-cloaths ; and the mind of the patient, also, is so very irritable, that he cannot suffer his attendants even to step about the room.

When the tumefaction arrives to the pitch, there follows a remission of pain, and the *paroxysm* ends with a *diaphoresis*, an itching, or changing into a chalky substance, which breaks the vessels.

In constitutions much broke, and shattered with the *gout*, those chalky concretions, formed in the joints of the fingers or toes, are thence translated to the *viscera* ; which cases are often attended with irregular, frequent, and short *paroxysms*, in the extremities : and in the decline of life, when the usual fits do not happen, or if the gouty matter be suddenly repelled from the extremities, by an improper

regimen, it usually seizes the internal parts, and frequently the stomach, head, intestines, &c. causing want of appetite, retching to vomit, indigestion, a *cachexia*, the *jaundice*, *asthma*, *diarrhœa*; and, at last, so obstructs the *fine capillary nervous tubes* (especially those of the stomach and brain), as possibly to hinder the flux of the *animal spirits*, and to be the cause of sudden and fatal consequences.

For *artbritic* complaints, of whatever denomination, the general method of treatment is nearly the same, in all.

Bleeding in the beginning, or at the coming on of a fit, and also in its decline, is of real use; especially the applying four or five leeches to the *hæmorrhoidal* veins; or, in the *sciatica*, *cupping*, with deep scarification, on the part: by this means alone, this disease has been absolutely cured, so as never to return again.

The crudities in the *primæ viæ*, especially such as are of a bilious nature, are to be carried off either by vomit, or other detergent means, as *tartarum vitriolatum*, &c. as they are the occasion of spastic pains.

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The violent emotions of the *blood*, and its acrimonious quality, are to be attemperated, and the rigors of the solids softened, and taken off by means of the *saline nitrous absorbents*; and *sudorifics*, artfully administered, with such medicines as have been experienced to restore the lost vigour of the bowels, are of the greatest benefit.

To pacify the raging pain, *nepenthe*, dropt upon sugar, is the most prevailing medicine, with warm milk-whey taken between whiles; and, externally, emollient *cataplasms*, or *fomentations*, and *anodynes*, applied hot, have a very good effect.

Above all things, when the fit is gone off, the occasional causes of its returning are to be avoided: these are, a too rich diet, drinking too much wine, the immediate use of *venery*, violent emotions of the *mind*, by anger, or other passions, and immoderate exercises: and if these are not restrained, the return of ease will probably be but of short duration.

Monsieur de Sault, being of opinion that the *gout* depends on the want of perspiration, proposes warm baths, exercises, keeping al-
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ways warm, and defending from cold; clean cloaths, moderate eating, abstaining from suppers, tranquillity of mind, friction, and milk-diet, as preservatives from it,

A gentleman of my own acquaintance, was cured of the gout, by a very copious bleeding at the nose, at the age of sixty-four, and lived many years after: he was attacked early in life, and had suffered frequent and severe *paroxysms*.

Rheumatism.

Rheumatism.

AN universal shivering, followed by a feverish heat, thirst, and restlessness; and succeeded by sharp pains, affecting the membranes of the muscles, and capsulæ of the nerves; are the general symptoms of this distemper, arising, for the most part, from an obstructed perspiration.

It is to be treated, as other inflammatory disorders, by repeated *bleeding*, *clysters*, gentle *perspiratives*, and a cooling, diluting *regimen*.

Aperient apozems, with nitre dissolved, and drops of *vinum antimoniale*, are useful remedies to answer these purposes.

When the pains are extreamly violent, after sufficient bleeding, a *bath* of warm water, in which the patient should remain an hour, affords the greatest relief. Great care must be taken afterward, to prevent his receiving injury from the cold air. He
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must, therefore, be wrapt up in a well-aired soft blanket, and laid in a warm bed; and supplied with draughts of warmed gruel, to sweat freely. His diet should be very thin, and it is necessary that he should be taken out of bed every day. *Ptisans*, and *Emulsions*, or draughts of sweet-wort warmed, are serviceable as common drinks. And when the use of the *lancet* seems to be no longer necessary, a common purging potion, with a paregoric draught, at night, may be given every two or three days, till the patient recovers.

If the pain, and swelling of the joints remain, after the fever is abated; apply three or four *leeches* to the part, where the inflammation and tumefaction are greatest; letting the blood ooze out, till it stops of itself. The repetition need not be limited.

When the fever goes off, and the patient seems to be recovering, the pain often moves from one joint to another. In this case, about half a dram of *sap. Venet.* should be taken twice or three times every day, with a draught of *sassafras tea*, and thirty
or

or forty drops of *vin. antimon.* and the articulations should be lightly rubbed with a piece of dry flannel.

Young people, not accustomed to drink wine, have been cured of *rheumatisms*, by living wholly upon *whey*.

Hepa-

Hepatitis.

THIS is an acute, continuous, and inflammatory fever, in which Nature frequently and forcibly propels the humours through the *liver*, seemingly with intent to resolve and absterge congestions and *stases* of the blood in that *viscus*. It is of all other fevers, perhaps, the most fatal. It differs, however, in degree; the inflammation of the *liver* proving more internal, or superficial.

This *fever* usually seizes the patient with a chillness, which lasts a considerable time: it is succeeded by a violent heat, which is much more intense at some times than at others, and is attended with an unsupportable thirst. The *patient* complains of a severe, and heavy pain, on the right side; and is afflicted with a great straitness of the breast, and difficulty of breathing. The urine is high-coloured, and thick, and after a few days deposits a sediment, of a mucous kind, which
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some have mistaken for a suppurated *pus*: but the distinction between this sediment, and true *pus*, is easily made, as the *pus* always subsides immediately on the making the water; but the other sediment not till it has stood to be cold, and this sediment becomes dissolved and mixed again with the urine, if the vessel containing it be set in hot water, which the true *pus* does not.

The general causes of the *Hepatitis* are a plethora, or a derivation of blood into the liver, which, mixing with the bilious humour, forms congestions and stagnations. These may be easily conceived to occasion this disease, by means of violent heat and motion: for, if the *oil of sweet almonds* were to stand in a hot place, or in the open air, for a fortnight or three weeks, in the summer-season, it would have a very pungent, nauseous taste, and, if drank, occasion violent inflammatory disorders; for it is then as great a caustic as *euphorbium* itself. And this may be the reason, why the *bile* in animals, which is an unctuous humour, when too long detained, becomes
so

so sharp and corrosive as to occasion terrible disorders.

The cure of this disease is very difficult, and its manner of going off very variable and uncertain. In some cases it goes off by regular discussion; sometimes by copious bleedings at the nose, or by profuse sweats which come on, on the regular critical days; and sometimes by the excretions, by the bowels.

Bleeding is generally necessary, and proper in the beginning of the disease; and, after this, the bowels are to be kept gently open by emollient *clysters*, and the mildest and gentlest *cathartics*. The *mixtura simplex* is a very valuable medicine given several times a day; and the following powder in the intermediate hours: viz. *Lap. cancr. citr. p. iij. calc. antim. p. ij. nitr. p. j.* The dose of this mixed powder is one scruple. While these things are given internally, the region of the *liver* should be bathed externally with *spirit of wine camphorated*, impregnated with *saffron*. If the disease is very violent, a gentle *anodyne* is to be taken at night: and, above all things,

rest,

rest, moderate warmth, and a placid regimen, are to be observed. With all these, the disease is oftener fatal than curable.

From the affections of the *liver*, caused by either extream in the tenacity or thinness of the *bile*, rendering it incapable to perform its proper offices, many diseases, and those of contrary natures, are the well-known consequences.

In the first case, which regards those chiefly who live sedentary lives, and without proper exercises of the body, the *bile* is obstructed in the *secretory glands*, and the small quantity that is secreted, stagnates in the *bepatic ducts*; whence the *liver* grows hard, and under its tunicle are formed whitish concretions, resembling hard *soap*.

In the other case, respecting such as are accustomed to high feeding, and drinking much of spirituous liquors, the *volatile salt*, which is one of the compounding principles of the *bile*, over-abounds; whence the *bile*, becomes too thin, hot, and irritating. In the former case, the body is too costive; in the latter, too lax.

But for the better understanding the causes of the different temperaments of the *bile*, and their effects, the most celebrated *Boerhaave* is to be consulted beyond all other writers on the *jaundice*, *hepatitis*, &c.

Angina.

Angina.

THERE are two species of the *Angina*, or *Quinzy*: the first is without any sensible tumor, either externally or internally; the other is attended with a tumor. The first is commonly the consequence of some very long distemper, especially after large and repeated evacuations: it is accompanied with a paleness, dryness, and thinness of the fauces; because, for the most part, the *nerves* and *muscles* are extenuated and relaxed: it is almost always a sign, that *death* is just approaching. Sometimes, also, this sort of *quinzy* comes on a sudden, without any other distemper preceding: it is scarce ever cured, and almost always, after death, the *lungs* are found suppurated. Remedies are indicated, which fill the empty vessels with good nourishment, and warm and strengthen the body in general: and there have been some instances, where fumigations

of *cinnabar*, *milk*, and the *bark*, have proved successful, even in these cases.

The other species of the *quinxy*, which is with an inflammation and tumor, affects various parts, as the *tongue*, and its *muscles*; the *palate*, the *tonsils*, the *uvula*, the *pharynx*, and *larynx*, and their *muscles*; the muscles of the *os hyoides*, the *wind-pipe*, the *œsophagus*, and its *muscles*, &c. The more of the fore-mentioned parts that are inflamed, the more grievous the distemper is, and the more dangerous: for inflammations here proceed in the same manner as others do, and are liable to undergo the same changes, viz. to be resolved or dissolved, to be suppurated, to *gangrene*, or to degenerate into a *scirrhus*.

In this inflammatory species we ought, by all means we can, to endeavour to procure a resolution: first, by large and repeated bleedings: secondly, by giving purges, or by clysters: thirdly, by very thin and slender diet: fourthly, by nitrose and subacid medicines: fifthly, by warm *vapours* continually used, as,

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R Acet. Sambuc.

—— Rosar.

—— Calend. aa ʒj.

Aq. stillat. Samb. ʒvj. M.

Let the warm fumes of it be drawn into the throat through a funnel. Besides, likewise, *fomentations, cataplasms, epispastics, &c.* may be made use of.

These means failing of success, the inevitable danger of the distemper being first declared, bronchotomy is to be proposed: viz.

About a thumb's breadth below the *larynx*, having first laid open the integuments, make an incision with a *lancet* between the ring-like cartilages of the *wind-pipe*, large enough to put in a silver tube, which is to remain till the cause is removed: mean time, nourishing clysters are to be frequently injected, until the patient be again capable of swallowing.

This is the method of practice recommended by *Boerhaave*; who may be consulted also of the *œdematous*, the *catarrhus*, the *suppurative*,

purative, and the *gangrenous quinzey*, of all which he has distinctly treated.

Many, in the cure of quinzies, extol bleeding in the ranula, under the tongue; some the jugulars; others prefer the foot to both, by reason of the greater revulsion.

Lotus optimus est sequens:

℞ Rad. Apij

—— Lapath. acuti

—— Acetofæ

—— Graminis, aa ʒj.

Fol. Acetofæ

—— Agrimoniz

—— Becabungæ, aa mij.

Sem. quatuor frigid. major. aa ʒj.

Coq. in Aq. com. colat. pint. iij.

Adde Nitri ʒij.

Rob. Sambuc. ʒiij. M.

De quo æger singulis horis capiat uncias tres vel quatuor.

℞ Decoct. Hordei ℥ij.

Syr. Violar. ʒij.

{ Sal. Nitr. depurat. ʒj. M.

Bibat pro lubitu.

Bathing

Bathing the feet frequently, in warm water, ought not to be omitted in the cure of this distemper.

O 4

Putrid

Putrid Sore Throat.

IT begins with a chillness, and heat, alternately; pain in the head, soreness of the throat, eyes inflamed, faintness, and anxiety. The arch of the mouth appears swelled; and the palate, and tonsils, and inside of the throat, are of a florid red colour. Instead of this redness, sometimes, spots of an irregular figure, of a pale, white, or brown colour, appear surrounded with a florid red. An efflorescence, like crimson, is frequently seen on many parts of the body, but especially on the neck and breast; and the hands, and fingers, are remarkably swelled. The parotid glands are swelled also, and painful to the touch. The pulse is quick and small, and sometimes soft and full, seldom hard; and the urine pale, and crude. When the distemper is slight, superficial *ulcerations* appear on the *tonsils*, and throat; but when bad, deep *sloughs* are formed, of an offensive

offensive smell, and *ulcerate*: a *delirium* ensues, with heat and restlessness for several days, especially towards night; and a gentle and agreeable sweat breaks out towards morning, which renders the patient easy: a faintness, nevertheless, still attends.

Bleeding, on account of the lowness of the pulse, is seldom recommended; but, in some cases, it is absolutely necessary: and, when inflammatory symptoms prevail, *nitrous* medicines may be given with safety, and advantage. The more general treatment, however, at first, is by warm perspiratives; the fever-powder (prepared with *calx of antimony* un washed, compound powder of *contrayerva*, and *nitre*), with a few grains of *saffron*, and *Russia castor*; or the saline draughts, made with *salt of hartshorn*: and afterwards the *bark* in decoction, with *spirit*. *Mindereri*. Blisters, to the back; and, to the neck, from below the ears to the *collar-bone*; are applied with success. The ulcers of the throat, may, at first, be gently rubbed with *honey of roses* acidulated, to which,
if

if the putrefaction be great, may be added a little *Ægyptiacum*, and *tincture of myrrh*. But, above all, let the hot steam of a mixture of *vinegar*, *myrrh*, and *honey*, be often taken into the throat by an inverted funnel; to which *spt. Minder.* may, also, be added. This steam is more efficacious than any *gargarisms*, and cannot be used too frequently. Some of the same mixture, also, may be injected warm with a *syringe*. But, if the putrefaction gains ground, the parts must be scarified, and kept clean by syringing; and the vapor, notwithstanding, be frequently applied. If the patient be low, add *confect. cardiac.* to the *bark-draughts*; or, in case of a purging, a proper quantity of *diascordium*: and, after every loose stool, give two spoonfuls of the following mixture:

R Aq. Cinnam. ten. ʒvj. Confect. Fracastor.
3iij. M.

When the *bark* cannot be taken in sufficient quantity by the mouth, it may be given by way of clyster; an ounce of the
fine

fine powder, to be mixed with a sufficient quantity of warm *oxycrate*, for this purpose : and it may be repeatedly occasionally ; adding, if it be found necessary, *tinct. thebaic.* *q. s.*

By this method, the sloughs will be likely to separate, and the symptoms in general abate ; but will leave the patient languid, weak, and low, with some *hectic* appearances : to remedy which, the *cortex* with *elixir of vitriol*, *asses milk*, the country air, gentle exercise, and good wholesome diet, prove extremely beneficial.

Before we quit this subject of sore throats, it may be necessary to observe, that there are many inflammatory cases, where it will be hazardous to wait till the tumefaction bursts of itself, without risking the suffocation of the patient ; especially when seated at the root of the tongue. On these pressing emergencies, when rigors and shiverings, preceded by throbbing pains, have denoted the formation of matter ; after depressing the tongue, the tumor must boldly be cut into by a curved knife ; and sometimes the incision must be
made

made deep, in order to enter the cavity where the matter is lodged. It requires, indeed, no small degree of *chirurgical* skill, to conduct such an operation; but an accurate examination of the parts with the fore finger, where the fulness is most distinguished, and softness most manifest, will be the best directory for the knife; which, should it fail to penetrate the cavity, will be attended with this advantage, that the discharge of the blood will deplete the vessels, and facilitate respiration, now in the utmost danger of being totally impeded.

Gangrene

Gangrene and Sphacelus.

THE *Gangrene* is a mortification, beginning to corrupt a fleshy part, while it retains some sense of *pain*, and a share of the natural heat; turning black, and spreading itself to the adjoining parts. It arises from an obstruction of the circulatory motion of the blood, which, by this means, fails to supply the part with the nutritious and spirituous juices, necessary to preserve its warmth and life.

This interception of circulation, which is the proximate cause of the *gangrene*, is itself occasioned divers ways; as by large tumors, great inflammations, violent cold, tight bandages or compressions, sudden fluxions of some malignant humor, venomous bites, fractures, wounds and ulcers ill-treated.

It is distinguished by the colour of the flesh, which first turns pale, then dusky or sub-livid; and by its growing loose and flabby,
from

from being vehemently tense before. In the progress of the disease, the part distils a fetid, discoloured water; and emits a *cadaverous* smell; then withers, and soon becomes insensible.

Great care is to be taken, if possible, to prevent the disease terminating in a *sphacelus*. In strong habits, it is always proper, at first, to bleed largely; and repeat it, as occasion shall require: and it is a most necessary step, in these cases, to be very careful, in the beginning, to remove all violent external causes of inflammation; as too strict bandages, in *wounds*, and *fractures*; all foreign bodies, which are accidentally lodged in the parts, as *thorns*, *splinters*, *needles*, and the like; and all improper external applications, such as *oils* and *plasters*, with cooling and astringent things; and especially, in old or weak people, to keep up the strength by such diet as affords good and suitable juices for nourishment. If the patient is weak, and in years, and naturally of a cold habit, especially if he has lost much blood, and abounds in crudities, the most suitable diet for him will be soups and
broths,

broths, made of *chicken*, or *meat*, with *mace* and other *spices* boiled in them; also draughts of *cordial liquors*, with *yolks of eggs*, *cinnamon* and *sugar*; *eggs* themselves poached, and eaten soft; strong jellies of *calves feet*, *hartshorn*, and *ivory shavings*, and old and rich *wines*. With respect to medicines, the proper ones are the *cordial tinctures*, *waters*, and *electuaries*, with *spices*, and other *cordial ingredients*; and teas made of *sage*, *scordium*, and the like herbs, with the *spices*, or shavings of *sassafras* and *yellow sanders*: for by these means, the stagnating blood will be greatly resolved and attenuated, and its sound and healthy parts will be retained in a due circulation, and its noxious ones discharged and dissipated. It is also of some service in these cases frequently to apply a *sponge* dipt in *Hungary water* to the nose, or to bind it to the wrists, or temporal arteries: the crumbs of *rye bread*, mixed with powdered *cloves*, and steeped in strong *vinegar*, and afterwards made up into a ball, and held frequently to the nose, is also a thing of no little service. For patients who are of a more warm, sanguine,

guine, and bilious habit, soups and decoctions mixed with the juices of *lemon*, or other vegetable acids, are very proper strengtheners; as also *barley gruel* mixed with *syrup of lemons* or *mulberries*, or with jelly of *currants*, to be taken daily for the common drink. But in these cases, when the heat is small, and the patient weak, or before accustomed to *wine*, it may be allowable to mix a little *wine* with the gruel: *Rhenish* is of all wines the most proper on this occasion; and a glass of that, or, if necessary, of a richer wine, may be given at proper intervals.

The temperate, or cooling medicines, commonly given in *fevers*, may also be administered properly in these cases; but, above all others, the *bark* is generally esteemed the great internal remedy in this disorder. To these must be added, the *surgeon's* utmost attention in the discharging the stagnating and corrupted blood from the parts, as soon as possible, and to prevent the neighbouring parts from being affected thereby: the principal methods of doing this are, while the proper internal medicines are given, to make *scarifications*,

cations, as occasion shall direct, upon the parts affected with the *scalpel*: these incisions are to be made all lengthwise, and very numerous on the part, and are to be opened to a sufficient depth; that not only the stagnating blood may be by that means discharged, but free way may be made, by those openings, for the ingress of the medicinal applications. And, lastly, discutient, balsamic, and stimulating *fomentations* and *cataplasms* are to be with great care applied to the affected parts, and frequently renewed. A very excellent fomentation, on these occasions, is made by mixing, with a pint of lime-water, three ounces of *camphorated spirit of wine*, with half an ounce of *spirit of sal armoniac*, or of *spirit of wine* with *myrrh*, *aloes*, and *saffron* infused in it, or *spirit of wine camphorated*, with a small quantity of *Venice treacle*, and *elixir proprietatis*. A decoction of *rue*, *worm-wood*, *southernwood*, and *chamomile flowers*, also, with an admixture of four ounces of *Venice treacle*, *Castile soap* two ounces, and half an ounce of *sal gem.* to the quart, makes a very valuable fomentation; this should be applied

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hot

hot several times in a day, by means of double linen or woollen cloths dipped in it ; and a lasting warmth may be serviceably kept, by means of a brick made hot by boiling water, and applied afterwards wrapped up in a linen cloth.

To stop the progress of the *gangrene*, physicians prescribe, internally, *sudorifics*, and *alexipharmics*; externally, decoctions of quicklime, either simple, or with the addition of *sulphur*, *mercurius dulcis*, and *spirit of wine camphorated*.

Belloste prescribes the following, as the most efficacious remedy known for *gangrenes* ; viz. *quicksilver* dissolved in double the quantity of spirit of *nitre*, or *aqua fortis*; a linen cloth being dipped therein, and applied to the gangrenous part. This alone, he assures us, is sufficient. If the *gangrene* be occasioned by an intense frost, snow water, or a linen cloth dipped in cold water, and applied to the part affected, *Boerhaave* directs as the best cure.

In cases of a perfect *sphacelus*, or *mortification*, where the parts are become absolutely
dead,

dead, and wholly without sense, and soft, so as to retain the impressions of one's fingers ends, and are plainly fetid and corrupted, all the medicines in the world will be ineffectual to restore the part to its life and sense again; and all that remains to be done, is the one miserable remedy of preserving the rest of the body, by cutting off that part, to prevent the mortification from spreading farther. A different method is to be taken, however, in this operation, according to the degree of the *symptoms*, and nature of the part affected.

If only some extremity of the foot, *tarsus*, *metatarsus*, or *instep*, or only the bare skin and fat are *sphacelated*, which is sometimes the case, the whole foot is not to be *amputated*, but, preserving the limb entire, the *surgeon* is only to remove that part which is vitiated; and that is frequently best to be done by suppuration, or, if not to be effected by that means, may be attempted by the *caustic*. When it is to be done by suppuration, that is to be brought on as fast as possible; and, when it is done, the crust or *eschar*

of the ulcer is to be separated from the sound parts with proper caution.

To hasten effectually a suppuration in these cases, nothing is so serviceable as the making long and numerous scarifications, deep, near the sound parts; and afterwards the incited parts are to be well anointed with the common digestive ointment, and after that treated with the balsamic cataplasms and fomentations, in common use on the like occasions.

A fomentation, also very serviceable in these cases, is made by mixing, in a quart of decoction of *scordium*, or of barley water, *vinegar of rue* six ounces, *spirit of wine* with *Venice treacle* four ounces, and two ounces of *common salt*: this is to be applied hot with compresses to the part, and frequently repeated, till it is seen that the disorder spreads no farther; which is known to be the case, when we see the tumor of the vitiated parts subside, and the edges of the sound parts become tumid all round: and on the second or third day after this a suppuration is usually formed,

formed, and the sound parts gradually become separated from the vitiated. After this, to soften and promote a speedy separation of the *eschar*, the following cataplasm is always found highly serviceable : viz. *scordium* two handfuls, *mallows*, *marsh-mallows*, and *henbane*, of each one handful, *lavender-flowers* half a handful ; let these be boiled to the consistence of a *cataplasm* in *vinegar*, or *oxycrate*, and when in that state, add to them three ounces of flour of *linseed*, one ounce of *linseed oil*, and two ounces of *sal armoniac*. This is to be applied warm over the whole, and retained in a proper degree of heat, as long as it shall be found necessary, by means of a brick boiled in water, and applied wrapped in a linen cloth, or some other like means. After these methods have been used, and the whole surrounding skin grows red and tumefied, a crust or *eschar* is then formed by degrees, and the sound flesh begins to separate from the rest : by this we know that the disorder has done spreading, and that an entire separation of the vitiated parts will very shortly follow.

When this separation shews itself beginning, it must be promoted as much as possible, by dressing the part with the common digestive, either alone, or mixed with *Venice treacle*, which must be retained on between the sound and dead parts. To make way for this, it is sometimes necessary to divide them a little by the *lancet*; and when that is done, and the dressing has been applied, the before-described *cataplasn* should be again laid on warm; and in all the succeeding dressings, whatever is found loose of the dead part must be carefully removed. And if it be necessary, from the adhesion of the vitiated parts to the sound, to use the *scissors* or *scalpel*, to divide them; this is always to be done with very little either of pain or danger: it will then be proper to dress the part with the digestive, and a common plaister over it, till the corrupted parts are entirely cast off, and the *ulcer* appears perfectly well cleansed, and then the cure is easily perfected in the common way.

This is the gentler, and most common method; some surgeons, however, from the tediousness

tediousness of it, have recourse directly, in these cases, to the *caustic*. They anoint either the edges only, or else the whole of the corrupted part, every day, with *butter of antimony*, or the *caustic stone* liquefied, till the living parts are surrounded by a sort of *eschar*, applying afterwards the *cataplasim* before described, or others of the same kind, to prevent the disorder from spreading; and to make the corrupted parts separate from the sound, the corrosive *lixivium of Boerhaave* is greatly in repute, and much used on these occasions. It is made of three ounces of very strong *quick-lime*, mixed with nine ounces of *pot-ashes*, first ground separately to powder, and afterwards mixed, adding a little water: they are then to be put into a glass vessel, and set in a cellar to run by *deliquium*.

As soon as they are found to become fluid, the matter must be put into a filtre of coarse paper, and the clear liquor that runs through must be kept for use. It is to be used by dipping a brush or feather into it, and rubbing it over the part affected once or twice a

day; or fine linen rags may be wetted with it, and applied all over the part; not forgetting, however, at the same time, the use of the before-ordered *cataplasim*: this application is to be continued till the corrupted part begins to cast off in crusts or scales; and when this is the case, it must be dressed with the common digestive, and, when perfectly cleaned, healed with a vulnerary balsam.

The *caustic* before mentioned, which is commended by *Belloste* in these cases, by rubbing over the parts also, will occasion a speedy separation. And several great *authors* advise the using the knife and actual *cautery* in these cases, dividing and burning down to the sound parts; but the cruelty of this method, and the pain, and sometimes danger that attends, make the methods of cure by suppuratives, and mild caustics, much to be preferred: indeed, the surgeons in general are not now so fond of calling in the actual *cautery* as formerly.

Finally, when the *sphacelus* is so deeply affixed in any part of the upper or lower extremities,

tremities, that it has penetrated through the muscles as far as the bones, and has either resisted the force of all medicines, or the proper time for applying them has been neglected ; in this case, to preserve the rest of the body, the injured part must be amputated.

Of

Of the Plague.

IN the most ancient times, *Plagues*, like many other diseases, were looked upon as *divine judgments*, sent to punish the wickedness of mankind: and, therefore, the only defence sought after, was by *sacrifices*, and *lustrations*, to appease the anger of incensed *Heaven*.

How much soever may be said, to justify reflexions of this kind; since we are assured from *Sacred History*, that *Divine Vengeance* has been sometimes executed by *plagues*; yet it is certain, that such speculations, pushed too far, are attended with ill consequences, by obstructing enquiries into the natural causes, and encouraging a supine submission to those evils, against which, the infinitely good and wise *Author* of Nature, has, in most cases, provided proper remedies.

Upon this account, in after-ages, when the profession of *physic* came to be founded upon the knowledge of *Nature*, *Hippocrates* strenuously opposed this opinion, that some particular

ticular sicknesses were *divine*, and sent immediately from the *gods*; and affirmed that no diseases came more from the *gods*, than others; all coming from them, and yet all owning their proper natural causes: that the sun, cold, and winds, were *divine*; the changes of which, and their influences on human bodies, were diligently to be considered by a physician.

Which general position, this great author of physick intended to be understood, with respect to *plagues*, as well as other distempers.

The origins of all *plagues* and *pestilences* have arisen mostly from some one or other of the following causes: 1. *Dead carcases* of men, horses, or cattle slain, and putrefying above ground by heat and moisture; *dead fishes* also, swarms of *insects*, bred in fens and marshy countries, as *caterpillars*, &c. drowned in the ocean, and thrown ashore by the tide in scorching climates, putrefying likewise by heat and moisture, and poisoning the atmosphere with their noxious particles, and volatile, urinous salts. 2. *Cloaths, rags*, animal and vegetable

vegetable substances, taken from persons dying of a *plague*, saturated with infectious or *deleterious* particles, which steam from them.

3. *Bad food*, i. e. putrefied and rotten, abounding with volatile, urinous salts: as the *hydrophobia* in *dogs*, and other *animals*, is probably from surfeits of putrefied *carrion*, or else the infection communicated by the bites of such animals. And, 4. from poisonous exhalations arising from *volcanoes* and *mines*, excited by subterraneous heat and fermentation. Some one of these causes have been the natural source of all the plagues, or pestilential distempers, that have ever been in the world. They soon, by their effervescence, rend, tear, and putrefy the solids, and break the cohesion of the fluids, and so destroy animal life.

The *plague* once begun, frequently joins itself with such other diseases as the people it attacks are most subject to: hence, in the northern nations, where the scurvy is frequent, it is often seen that the plague and scurvy appear mixed. These two distempers, in their nature somewhat agreeing, make each other the worse, and more violent; but, on the contrary,

contrary, there are other diseases, depending on such contrary causes, that the plague, if the patient survives, proves a cure to them.

Dr. *Hodges* instances the consumption, and the *king's-evil*, as two diseases of this kind; which, though in themselves of the most terrible kind, and, when in an advanced stage, usually baffling all remedies, yet he saw persons, in the plague that last raged in *London*, cured of both by the *plague*: the symptoms of the disease appearing more mild in these, than in other cases, and the patients at once recovering of both complaints.

Among pestilential fevers, Dr. *Mead* places the *small-pox* in high rank with the plague: and, though these two distempers differ exceedingly in their natures, he makes his comparison with great perspicuity; both being contagious distempers, and both attended with certain eruptions. And as the eruptions, or pustules, in the *small-pox*, are of two kinds, which has caused the distemper to be divided into two species, the distinct and confluent; so are there two sorts of eruptions, or tumors, which attend the *plague* also. In the first,
and

and mildest kind of the *small-pox*, the pustules rise high above the surface of the skin, and contain a digested pus; but, in the other, the pustules lye flat, and are filled with an indigested sanies. The two kinds of critical tumors in the *plague* are yet more different. In the most favourable case, the morbid matter is thrown upon some of the softest glands, near the surface of the body, as upon the *inguinal*, *axillary*, *parotid*, or *maxillary glands*: the first appearance of which is a small induration, great heat, redness, and sharp pain near these glands. These tumors, if the patient recover, like the pustules of the distinct *small-pox*, come to a just suppuration, and thereby discharge the disease. In worse cases of the distemper, either instead of these tumors, or together with them, *carbuncles* are raised. The first appearance of them is a very small indurated tumor, not situate near any of the fore-mentioned glands, with a dusky redness, violent heat, vast pain, and a blackish *spot* in the middle of the tumor. This *spot* is the beginning of a *gangrene*,
which

which spreads itself more and more as the tumor increases.

But, besides the agreement in these critical discharges, the two distempers have yet a more manifest likeness in those livid and black spots, which are frequent in the *plague*, and the signs of speedy death: for the same are sometimes found to attend the *small-pox*, with as fatal a consequence. Moreover, in both diseases, when eminently malignant, *blood* is sometimes voided by the mouth, by urine, and the like: and we may farther add, that, in both, death is usually caused by *mortifications* in the *viscera*. This has constantly been found in the *plague* by the physicians in *France*; and I am convinced, from the accounts I have received from others, of the dissections of many people who had died of the *small-pox*, that it is the same also in that distemper.

This *analogy* between the two diseases, not only shews us, that we cannot expect to cure the *plague*, any more than the *small-pox*, by *antidotes*, and *specific medicines*; but will likewise direct us in the cure of the distemper,

with

with which we are less acquainted, by the methods found useful in the other disease, which is more familiar to us.

In short, as, in the *small-pox*, the chiefest part of the management consists in cleaning the *primæ viæ*, in the beginning ; in regulating the *fever* ; and in promoting the natural discharges : so, in the *plague*, the same indications will take place. The great difference lies in this, that, in the *plague*, the *fever* is often much more acute than in the other distemper ; the stomach, and bowels, are sometimes inflamed ; and the eruptions require external applications, which, to the pustules of the *small-pox*, are not necessary.

When the fever is very acute, a cool regimen, commonly so beneficial in the *small-pox*, is here still more necessary : but whenever the pulse is languid, and the heat not excessive, moderate *cordials* must be used.

Vomiting is not so generally safe in the *plague*, as in the *small-pox* ; so that the most gentle emetics ought to be used, and with great caution too, that the stomach and
bowels

bowels be not inflamed : otherwise, the stomach ought to be gently moved.

The eruptions, whether glandular tumors, or carbuncles, must be left to the course of Nature, as is done in the *small-pox* ; but all diligence must be used, by external applications, to bring them to suppurate. Both these tumors are to be treated, in most respects, alike. As soon as either of them appears, fix a cupping-glass to it, without scarifying ; and when that is removed, apply a suppurative cataplasm, or plaister of warm gums.

If the tumors do not come to suppuration, which the carbuncle seldom or never does ; but if a thin ichor exudes through the pores, or a black crust appears upon it, then it must be opened by incision. And this being done, it will be necessary to stop the bleeding, and dry up the moisture with an actual cautery, dressing the wound afterwards with doffils dipt in a mixture of *ol. terebinth.* warmed *pt. ij.* and *spt. sal. ammon. p. j.* and pledgets of common digestive, with a suppurative cataplasm over all. The next day the wound ought to be well bathed with a fomentation

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made

made of warm aromatic plants, with *spt. of wine* in it; in order, if possible, to make the wound digest, and the sloughs separate. After this, the ulcer may be treated as one from an ordinary abscess.—Farther, in the glandular tumors, when they are suppurate, we ought not to wait till the matter has made its way to the outer skin, but to open them as soon as they are risen to any bigness; because these tumors begin deep in the gland, and often mortify before the suppuration has reached the skin, as the physicians in *France* have found upon the dissection of many who died of the plague at *Marseilles*.

This is the method in which the *plague* must be treated, in following the natural course of the distemper. But the patient, in most cases, runs so great a hazard in this way, notwithstanding the utmost care, that it would be of the greatest service to mankind, under this calamity, if some artificial discharge for the corrupted humours could be found out: for this purpose large bleeding, and profuse sweating, have been recommended upon some experience.

Dr.

Dr. *Sydenham* tried both these evacuations with good success, and has made two very judicious remarks upon them. The first is, that they ought not to be attempted, unless in the beginning of the sickness, before the natural course of the distemper has too long taken place ; because, otherwise, we can only expect to put all into confusion without any advantage. His other observation is, that we cannot expect any prosperous event from either of these evacuations, unless they are very copious ; there being no prospect of surmounting so violent a malignity without bolder methods than must be taken in ordinary cases.

The practice of *bleeding*, in *France*, we are informed, was carried on, with a liberal hand, and very successfully : their method was to draw off, the first day, twelve ounces of blood, and four or five more every two hours after ; till the patient, by the assistance of a plentiful use of ptisanes, and cooling drinks, fell into a profuse sweating, which was usually kept up for many hours. And Dr. *Sydenham* advises it to be continued, without intermission, full twenty-four hours. Indeed, it is more

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prudent

prudent to run some hazard in exceeding, than to let the patient perish for want of due evacuations.

The juice of *lemons* is commended, as of singular efficacy, in the *plague*, and *pestilential fevers*: *Piso* relates that it is the principal remedy of the *Indians*; and Dr. *Harris* observes that the *Turks* have, principally, recourse to it. Dr. *Boerhaave* says, *vinegar* is justly esteemed for its anti-pestilential virtues, both as a preservative from the first attack of the *plague*, and the cure thereof: that *Sylvius* took two spoonfuls of it every morning, before he visited his patients, in a general plague season; and all along remained perfectly free from every symptom of the distemper. Dr. *Dover* says he cured some sailors of the *plague*, by one very plentiful bleeding, to the quantity of a hundred ounces, and with drink sharpened with spirit, and oil of vitriol.

It has been remarked, both by the *French*, *English*, and *Germans*, and particularly by *Sylvius*, *Forestus*, and *Diemerbroeck*, that, in the time of the *plague*, almost all the *soap-boilers*,

boilers, fullers, and such whose business led them to make use of soap, or even those who put on clean linen that had been washed in soapy water, died of the distemper; whilst those were found to escape, who were in like manner any way concerned with acids.

The Small-Pox.

THE *small-pox* is a contagious disease, appearing in pustules, or ulcerous eruptions on the surface of the skin, which leave eschars behind them.

It bears so great a resemblance to the measles, that, for a day or two at first, it is difficult to distinguish between them. But this difference is evident, that, in the small-pox, the peccant matter is more thick and viscid; in the measles, more subtile, hot, and bilious.

Dr. *Boerhaave* considered the *small-pox* as a *cutaneous* inflammation, joined with a *contagious* eruption; and therefore required, for the most part, the general remedies for the former, with those that are esteemed specific in the latter. He was naturally led to such a method as enabled him not only to mitigate the *symptoms*, and to lessen the danger of the distemper, but sometimes even to prevent any eruption, by subduing it on its first attack: and

and he doubted not but that a *variolous fever* might be observed by others, using the same regimen, to be sometimes removed before it produced a *variolous eruption*.

The contagious matter of the *small-pox*, being mixed with the humours, produces effects, nearly, in the following order, and method: horripilations, cold stiffness, pain in the head, neck, limbs, and back; nausea, vomiting, acute fever, restlessness; and, in children, drowsiness, sleepiness, and epileptic fits.

It has an affinity with all other inflammatory diseases: and, therefore, during the progress of the *symptoms*, *bleeding*, and repetitions thereof if necessary; occasional vomiting; emollient and lenient *clysters*; and plenty of diluting liquors; are the general means supposed to be useful.

Great sweats are of dangerous consequence in the first stage of this distemper, and therefore carefully to be avoided: and, indeed, in the most violent cases, the success most commonly depends upon the proper management at first, both before, and during the eruption of the pustules, by supplying the patient with

plentiful draughts of *nitrous emulsion*, *orange whey*, &c. for want of which, an immoderate exaltation of the ferment increases the force of the morbid matter, so much, that the patient sinks in the beginning of the disease; when, by reason of the confused, and irregular motion, raised in the blood, the matter of the disease cannot disentangle itself. and hence bloody urine, and petechiæ, are the natural consequences.

Mr. *Wilson*, the hospital surgeon to the English army, not far from *Louvain*, ann. 1705, bled plentifully those who seemed to be attacked with the symptoms of the *small-pox*, and were feverish, or plethoric; and if attended with any pain, nausea, or other complaint of the stomach, he ordered an emetic of *ipécacouha*, and then gave them barley-water acidulated with *spirit of salt*, and sweetened with syrup of *corn-popp*y, to be drank when thirsty. The patients were kept cool, with the doors open, all the day long. Their diet was *panada*: and, by this method, most of them recovered.

The great business is to keep the inflamed
blood

blood within its true bounds; and at the same time to assist the expulsion of the morbid matter through the skin; and this is best effected by occasional bleedings, with cooling and diluting medicines.

When the inflammation attacks the bowels, a *diarrhœa* generally ensues, for which *bleeding* seems to be the most necessary expedient, where the patient's strength can admit of it; and, indeed, I believe, it very rarely happens, but that it may be put in practice, upon any extraordinary emergency, with much safety. One instance I may insert for the confirmation of this opinion. I attended a young lady who had a contiguous eruption of the *small-pox*. The sixth day of the distemper, she was suddenly surprized with a great difficulty of breathing, and in a while after, before I could be fetched to her from some distance, she had a very large discharge by the bowels, which relieved, and, in a manner, carried off the *dyspnœa*: but then the flux was too profuent to be borne. Wherefore a *clyster* of milk and *diacodium* was given, to pacify the bowels; which, for
a short

a short space of time, seemed to have some good effect ; but then the shortness of breath grew bad again, and the urine was deeply tinged with blood. I ordered *bleeding* in the arm, which soon gave her some relief ; and the following mixture to drink a cupful of at pleasure, viz. Bristol water acidulated with lemon-juice, and sweetened with syrup of corn-poppy. But after a while, the same difficulty returning, the *bleeding* was again repeated in lesser quantity ; and so every two or three hours, till the *dyspnœa* was no longer a prevailing symptom.

It was computed that this patient lost, in five several bleedings, within the space of fourteen hours, more than a pound of blood. By these means, also, the inflammatory diarrhœa was perfectly appeased, and the urine no longer tinged with blood ; the coction was assisted, the pocks afforded a laudable suppuration, and the patient, though of a very delicate habit, perfectly recovered.

A *ptyalismus* is a regular attendant of the confluent *small-pox* in adults, from the fifth or sixth day, till after the *crisis* ; and it is so
necessary

necessary, that, if it stop suddenly, and return not for four-and-twenty hours, the patient is supposed to be in very great danger.

On a similar occasion, when bleeding could no longer be of any use, I have known the extraordinary effects of a *cinnabar* fumigation to have been experienced in a most difficult and dangerous crisis, when, from a congestion of humours about the neck and throat, the patient seemed to be in a manner suffocated. The experiment proved very efficacious; for the subtilty of the fume, by penetrating the thorax, occasioned a sudden fit of coughing, whereby a very great quantity of filthy viscid phlegm was excreated, which gave a speedy relief to the patient's breathing: and from the *gangrenous sloughs* which were separated, and brought off afterwards, by the use of this medicine, it appeared, indeed, that the muscular parts of the throat had been rescued from a dangerous mortification. The *ptyalism* was plentiful, and continued many days; till the morbid cause, with the assistance of repeated purging of the body, was totally extinguished.

The

The Measles.

THE *Measles* is a cutaneous disease, consisting in a general appearance of eruptions, not tending to suppuration, accompanied with a fever.

This distemper seems to bear a great affinity to the *small-pox* ; the *symptoms* being in many respects the same, the cause nearly the same, and the regimen and cure not much different.

The eruptions usually appear about the fourth day, like *flea-bites*, over the whole body ; but thicker and redder, and with greater inflammation, than those of the *small-pox* ; and vanish in four or six days after appearance, being, when at the height, not larger than pins heads.

This inflammation does not only affect the surface of the body, but the inner parts also, and particularly the lungs : hence follow a cough, and difficulty of breathing. And although the distemper in its nature be less dangerous

gerous than the small-pox, and of shorter duration; yet it seizes with more violent heat, and greater anxiety, than the other does.

When *blood* is taken away in the beginning of this distemper, it is accounted a most general security to prevent the inflammation's falling upon the *lungs*, and *bowels*; and, therefore, it ought to be considered of, at first, as a principal remedy: or, if it has been neglected, it must still be put in practice in the progress of the distemper, and repeated also, if there be occasion, upon any emergency. And at the end of the disease, likewise, when the skin is growing dry, and peeling off, it will be a great error not to open a vein again; that by this means a flux of humours upon the breast and intestines, and the *symptoms* of a *hectic fever* and *consumption*, may be happily prevented.

The diet ought to be the same as is prescribed in the small-pox; taking particular care that the body be kept lax rather than bound up, through the whole course of the distemper.

And to those cooling remedies which are directed

directed in the other distemper, must be added such as abate the cough, and help expectation; particularly oily linctus, and the pectoral infusion, of which, with the addition of a little nitre, the patient may drink liberally, and often.

Opiates, in the progress of this distemper, to quiet a cough, which, from the sharp defluxion upon the lungs, threatens a hectic fever and consumption, are generally useful.

Gentle purges are to be given at due intervals. *Asses milk, change of air, and exercise*, suitable to the strength of the patient, are also necessary.

Tremor.

Tremor.

TRÉMOR is nearly a-kin to convulsion, wherein there is something of a convulsive motion, or shaking, accompanying a voluntary, or natural motion.

It consists in a violent agitation of the limbs, in contrary directions ; owing to a deficiency of the due tone, and proper nîsus of the affected parts.

Tremors have been distinguished by *authors*, into active and passive. The active is that which happens in violent passions ; as *terror*, *anger*, *joy*, &c. or in intermitting *fevers* ; and is to be referred to the semi-convulsive motions. The passive is owing to a private cause, and is allied to the semi-*paralytic affections*. Hence it is accidental, and transitory.

The passive tremors of the limbs, when considered as a disease, are to be distinguished from those which are caused by external accidents, such as being plunged into cold water ;

ter, and drinking strong tea, or coffee; and other such accidental causes.

Persons subject to tremors of the limbs, are principally old people, in whom the vital principle is grown weak and languid; and the more the disease is confirmed, by being grown habitual, the more difficult is the cure. But if a case of this kind be taken in hand, as soon as it seizes the patient, and be treated in a rational manner, it is often perfectly cured. In order to this, the first step must be the perfectly cleansing the *primæ viæ*, by repeated doses of *rhubarb*, or the extract of *black bellebore*. If any habitual evacuation has been omitted, as *bleeding*, or the like, this must be restored in the accustomed manner; or if any natural flux of blood, by the *hæmorrhoides*, or otherwise, has stopped, this also must be recalled by proper medicines, or by the application of *leeches*. After this, the due tone of the parts is to be restored by nerve medicines, as by wine impregnated with *serpyllum*, *lavender*, *sassafras*, *guaiacum*, and the like ingredients; and, externally, by rubbing the parts with *spirit of castor*, *camphire*, *serpyllum*;

pyllum ; and bathing them with decoctions of *tanzy*, *savine*, *feverfew*, &c.

The medicine commonly made use of in tremors, and other nervous distempers, is the compound spirit of *lavender*. The most successful way of using it, is, by taking thirty or forty drops, twice or thrice a day, dropt on loaf sugar. It is supposed, that, by this way, the most spirituous and efficacious parts make their way by the nerves of the palate, &c. without undergoing the course of the circulation ; as it must otherwise do, when taken in a liquid vehicle.

R

Spasm.

Spasm.

A *Spasm* may be either universal, extending itself over the whole body, which is a very rare case ; or partial, occupying only some one part of the body: these are very frequent, and seize at times on every part, from the head to the foot.

Of the nature of the universal *spasms*, are,
 1. The *Tetanus*, which seizes upon the whole body, and makes it stiff, and rigid, in every part. 2. The *Emprostotonos*, which bends the body forwards, so that the head is brought to meet the knees. 3. The *Opiſthotonos*; this inclines the whole body forcibly backwards. And, 4. the *Catalepsis*, which seizes the whole *system* in a moment, and fixes it rigidly in that posture in which it finds it; so that the position of every limb, and the very turn of the countenance, and look of the eyes, are the very same as when the patient was seized,

To the class of particular, and partial *spasms*, belong, 1. Many of the *Artbritic* complaints. 2. The *Incubus*, or Night-mare, which is a *spasm* of the breast. 3. The Convulsive *Asthma*. 4. The *Cynic Spasm*, which is a peculiar distortion of the face, resembling the gestures, and snarlings of a dog. This endures usually many hours, and is often of very fatal consequence, frequently terminating in an *apoplexy*, or in some terrible convulsions. 5. The *Risus Sardonius*, resembling that of a person laughing, which only differs from the former, in that it is attended with an absolute delirium, which is not the case in the other. 6. The *Priapism*, which is an involuntary, and painful erection of the penis. 7. The Spastic Contraction of the *Colon*, in flatulent *cholics*. 8. The fixt *Spasms* of *Paracelsus*, which are often afflicting podagric and arthritic patients.

Spasms in general, beside these distinctions, are divided by authors into the sudden, or instantaneous, which seize upon any muscle in a moment, and keep it for a considerable time in a painful state of contraction ; and the slow ones.

The slow ones are of two kinds: 1. the muscular and tendinous; and, 2. the fibrillary. In the first of these, the whole muscle is affected with tensive pains, and the limb becomes finally contracted. In the other, the separate fibres of the muscle are only affected. This is usually the case in *spasms*, in *arthritic* cases, which seize a few fibres only at first, but finally fasten upon more, and extend themselves over the whole muscle, in which case the pain usually becomes less.

A tensive pain in the neck, occasioned by sitting, or lying, in an uneasy posture, usually called a crick in the neck, is also to be enumerated among the partial spasms: and, finally, these affections are not restrained wholly to the external parts, but often seize also upon the internal, as the œsophagus, the stomach, the bladder, &c.

It is a common error, to confound the word *spasm* with convulsion: their difference is evident; the one being stationary, and immoveable; the other erratic, and flying from one part of the muscle to another, and from one muscle to another. The con-

vulsion

vulsion also usually extends itself farther than the *spasm*, and is greater in degree; and, finally, *the spasm* is a much less dangerous complaint than the convulsion.

Men are much more subject to *spasms* in general, than women; and, among them, such, as are of a sanguine and plethoric habit, are most of all subject to them.

The general cause of *spasms* is an abundance of blood, in a body where the vessels are small; and Nature is endeavouring to throw off the load of the *plethora* from vessels, where it is troublesome to her, by this means; which, though an erroneous one, is therefore not without its end.

The universal spasms are greatly the most dangerous, as they are frequently attended with internal inflammations; and the partial spasms too often degenerate into convulsions.

If spasms are very frequent in young people, they are to be suspected of threatening arthritic complaints in old-age; and when persons have been free from spasms in their youth, and become subject to them when old, it is much to be feared that they portend *apoplexies*,

plexies, palsies, and suffocative catarrhs: and in general all *spasms*, as they are, in reality, no other than the incomplete attempts of Nature, to free herself of somewhat that offends her in particular parts, portend some worse mischief, when they are observed to return frequently, and with violence. *Spasms* happening in acute diseases, and from wounds, are always very dangerous symptoms, and threaten convulsions, and other mischiefs.

The means to be used when the fits are off, are bleeding in any manner; by the *lancet*, by *leeches*, or by *cupping*; as may be most proper, in regard to the part principally affected, and other circumstances: after this, the *primæ viæ* are to be cleansed by purges, from all foulnesses that may adhere to them: and, finally, such medicines are to be given, as are known to attenuate the blood: and, with all this, gentle exercise is of great service. In the time of the fit, lenient, and purgative medicines; of this kind are *succinum*, *spirit of hartshorn*, &c. To these are to be added the *acrid vegetables*, such as the more temperate *carminatives*; and the emulsive di-

luent

luent medicines, *with nitre and cinnabar*. This last is famous alone in all these cases, and indeed in all emotions of the blood ; but neither this, nor any of the others, will take effect till after *bleeding*, if the *spasm* be violent. The *volatile alkalies* also succeed best when mixed with a fixed one ; such as the *spirit of hartshorn* with the *tincture of salt of tartar*, or of *antimony*.

R 4

Convulsion.

Convulsion.

THIS is a continual involuntary contraction of some parts of the body, otherwise accustomed to move according to the direction of the will.

It owes its *origin* to a contraction of the muscles of the part, occasioned by a too copious and violent influx of the *nervous juice*: of which there may be infinite causes in the blood, arteries, meninges, brain, nerves, muscles, cranium, &c.

The usual evacuations, and medicines proper for the cure of convulsions, are *phlebotomy*, *emetics*, *cathartics*, *epispastics*, and proper *cephalics*: as *volatile aromatic spirit*, *spirit of lavender*, *spirit of hartshorn*, *tincture of castor*, *cinnabar of antimony*, *cassummunair root*, *valerian root*, *volatile salt of amber*, &c. given in different forms.

Convulsions in children are caused by several different means, and therefore require
a dif-

a different treatment. If they arise from a repression of sweats, the common alexipharmics are to be given; and, in the intermediate times, small doses of *mercurius dulcis*. If they are owing to acrimonious humours in the bowels, they are to be cured by gentle doses of *syrup of rhubarb*, and powders of *calcined crystal*, and other absorbents. When they are caused by abundant ferosities, *valerian roots*, and *aurum fulminans*, are greatly recommended. When they are *epileptic*, and return very frequently, *cinnabar* is to be given frequently in powders; and when they are owing to worms, *mercurius dulcis* is the best of all remedies.

Chorea

Chorea Sancti Viti.

DR. *Sydenham* properly observes this disorder to be an universal convulsion, which sometimes continues several weeks, nay months, without intermission.

Those affected with this disorder, are continually in strange motions, with their head, legs, and arms; so that they are unfit to feed themselves.

It differs from other convulsions, in that the motions are not painful; nor are any of the extremities, or parts, forcibly contracted, or extended for any time.

Boys, and girls, are most subject to this disease; and that, from ten years of age, to puberty: though the latter oftener than the former.

It sometimes precedes the first eruption of the *menfes*; in which case, proper cathartics, with *calomel*, and deobstruents, are generally
used;

used ; otherwise evacuations, and *anti-epileptics*, as in other *nervous distempers* ; and afterwards the *cold bath*, *bark*, and *chalybeate medicines*.

Hiccough

Hiccough

THIS is a sudden, irregular inspiration; wherein the stomach, and the parts contained in the lower venter, are impelled downwards.

The *hiccough* is not immediately a disorder of the stomach, as it is usually imagined; but a convulsive motion of the diaphragm, whereby that muscle retiring impetuously downwards, impels the parts beneath it.

It is occasioned by sharp humours; a too great plenitude of the stomach; a bit of any thing stopped at its upper orifice; or, in the general, by any thing capable of irritating the nerves of the diaphragm.

The remedy for the *hiccough*, according to *Hippocrates*, is to fetch the breath very long; or even to stop the breath for some time. A *sneezing* happening upon a *hiccough*, generally cures it; the *diaphragm*, shook by the
violent

violent expiration, being apt to throw off what before irritated it.

People subject to habitual *hiccoughs*, will find relief, by usually wearing a belt round the *abdomen*; and such should always use moderate exercise, and avoid large draughts of cold liquors.

Carminatives, *vinegar*, *musk*, and *laudanum*, have been successfully used, for remedying this disorder.

Sneezing.

Sneezing.

THIS is a convulsive motion of the muscles of the breast, used in expiration; wherein, after suspending the inspiration begun, the air is repelled, from the mouth and nose, with a momentary violence and noise.

The cause is an irritation of the upper membrane of the nose, which communicates with the intercostal nerve, by means of the twigs that it detaches to it,

This irritation is performed either externally, by strong smells, as *marjoram*, *roses*, &c. or by dust floating in the air, and taken by inspiration; or by sharp, pungent medicines, as *creffes*, and other *sternutatories*, which vellicate the membrane of the nose: or, internally, by the acrimony of the *lymph*a, or *mucus*, which naturally moistens the *membrane*.

The matters cast forth by sneezing, come primarily from the nose and throat; the *pittuitary*

tuitary membrane continually exuding a *mucus* thither : and, fecondarily, from the breast, the *trachea*, and the *bronchia* of the lungs,

Too much sneezing is a difeafe of the convulfive kind, and therefore in general requires the fame cure. Lenients, and mucilages, are to be drawn up into the noftrils.

Sneezing coming upon a *hiccough*, puts an end to it ; becaufe it is a *fpaſmodic* motion contrary to it.

Convulſive

Convulsive or Hooping Cough.

THIS disorder is of the *spasmodic* kind, and is distinguished from other coughs, by a singular *hooping*, and *noise*. It is difficult to ascertain what parts are principally affected, whether the *lungs*, *diaphragm*, or *stomach*; they are, perhaps, in some measure so, by *sympathy* of parts: but it should seem that the stomach is principally affected, from the relief the patient finds from vomiting up, at the end of the fit, a quantity of roapy, heavy, viscid *phlegm*, or inspissated glandular liquor; which could not possibly be so frequently ejected from the lungs of children, or be accumulated there in such quantities.

The most successful method of treating this disorder, seems also to favour this opinion; as those medicines that attenuate the viscid *phlegm*, discharge it from the stomach, and strengthen the *organ* at the same time, are found to give the greatest relief, and shorten the duration of this tedious malady.

Gentle

Gentle vomits are found particularly useful, and should be given once in two or three days; either the *ipeacacoanka wine*, or, which has succeeded best with some, the *white vitriol*. A few grains of *rhubarb*, or else a milk clyster, with a dram or two of soft *soap* dissolved, should also occasionally be given, to carry off the offending cause by the bowels: and the *bark* should be given in decoction, or substance, three times a day, to strengthen the stomach.

When the disorder is attended with *fever*, both bleeding, and blisters may be necessary; and, when the cough and *spasms* are violent, twenty, or thirty drops of *paregoric elixir* may occasionally be taken; or two or three spoonfuls of a mixture prepared with six ounces of *musk julep*, half an ounce of *paregoric elixir*, and a dram or two of *tincture of valerian*: an ammoniac solution may be given also, with castor, by spoonfuls, for this purpose.

Dr. *Fothergill* recommends the following *antimonial* composition, as a useful medicine in this disorder: viz. half a dram of powder of

crab's-claws, and two grains of *emetic tartar*, rubbed together. One grain, one and a half, or two grains of this, may be added to five or six of any *testaceous powder*, and given in a small spoonful of milk and water, in the forenoon, between breakfast and dinner, to a child of a year old.

If the quantity does not prove sufficient to excite vomiting, it should be increased next day, to such a dose as will produce this effect; and repeated about the same hour at night. When the fever is vehement, half the former dose of *antimonial powder* may be given with a few grains of *nitre*, or the following *fever powder*, viz. *calc. antimon. non ablut. pulv. contray. comp. nitr. aa pt. æq. M.*

This generally procures an agreeable sweat, and abates the fever; but, if it fails to procure a stool or two daily, a proper quantity of *magnesia* may be given at bed-time with the antimonial powder.

When the cough decreases, and every other symptom abates, the powder may be taken only for two days together, and omitted on the third. Every other day will then suffice; and

and then only once, or twice a week, till the cough is wholly gone.

During this process, *asses* milk is directed; and to eat sparingly of the lightest meats, broth likewise, and milk in any shape. Quantity is strictly enjoined to be regarded; for the more, and oftener, the stomach is filled to the least degree of oppression, the longer the disease continues, and with the greater violence.

Convulsive Asthma.

THIS disease is a violent convulsive compression of the muscles of the breast, in which Nature's efforts seem to be the relieving of herself from the load of a *plethora*, by a spitting of *blood*, though she fails in the attempt.

The *convulsive asthma* resembles the *incubus* in many particulars, though it never seizes any body, but when awake ; whereas the other usually attacks people between sleep and waking : and this is a much more lasting complaint, and more frequent, in the return of its *paroxysms*, than the other. The *incubus* also prevents respiration, in so violent a degree, that the person can form no articulate sound ; but the *convulsive asthma* suffers a much more free respiration, and the use of the voice. *The incubus is accounted a disease of very little danger ; but this, on the contrary, is a very dangerous, and often fatal disorder.*

It

It is attended with a great shortness of breath, which differs from the *suffocative catarrh* only in this, that it is somewhat less violent, and not attended with that terrible sensation of a stuffing up of the breast: this is accompanied with a numbness of the limbs, and a general lassitude of the whole body; there is a violent compression felt in the breast, and about the shoulders, with a great palpitation of the heart. The face is red in some parts, and seems tumid, and the temporal arteries are distended. The bowels usually are costive, and there is a great dimness often in the eyes, and sometimes an alienation of the mind. These symptoms usually come on in the evening, and last an hour or two: often, however, the fits are of much longer duration; and sometimes they observe regular periods, at different distances of time.

Those of *plethoric* habits are much more subject, than any other people, to this disease. It does not often seize young persons, except in consequence of other diseases; and, in that case, it usually is a very bad omen. It is most common to people of a middle age,

and returns frequently, by fits, for many years together; and sometimes it is more violent, and takes them off in a very little time. People often fall into this disease, from having been used to periodic *bleedings*, or *cupplings*, and neglecting them afterwards; and those who change a busy, or laborious life, for an idle, and sedentary one, often fall into it; as do those, who have had the gout thrown back by improper medicines. Women also sometimes fall into it from suppressions, or imminutions of the *menfes*; and men of *hypochondriac* habits, from suppressions of habitual evacuations of blood from the *hæmorrhoidal* veins. The causes of this disease are very various; and it is sometimes an idiopathic, sometimes a symptomatic complaint: it very often attends malignant fevers, and arthritic cases; and joins itself with other distemperatures of the breast.

This, though not immediately destructive, is often a very dangerous complaint; and in a shorter, or longer time, proves fatal to the patient. In middle-aged people, it usually brings

brings on acute fevers, or spitting of blood; and in old people, *palsies*, *apoplexies*, or *suffocative catarrhs*. It rarely remains in *statu quo*.

In the time of the fit, a *chylster* is to be immediately given; and bleeding to be ordered, unless there is a contra-indication: after which the emotion of the blood is to be allayed by nitroſe and cinnaberrine powders; with theſe the gentle diaphoretics may be joined, eſpecially in caſe of fever attending it, which very frequently happens. Where the caſe is very urgent, a ſmall doſe of ſtorax pill may be added to the powder, to be taken at night. Externally, *ſpirit of wine* and *camphor* may be rubbed on the breaſt and ſhoulders, eſpecially where the patient has been uſed to cupping, and has neglected it; rubbing the ſhoulders with a flannel often has a good effect alſo; and fumigations of *amber*, *ſtorax*, and *maſtick*, &c. may be uſed. When the fit is off, the patient ſhould uſe frequent waſhing the feet in warm water, and ſhould be always blooded in the foot, in ſpring and fall: he ſhould alſo take gentle purges, at thoſe times.

And if the neglect of habitual cuppings, or suppressions of the *hæmorrhoids*, or menses, have concurred, great care is to be taken to bring all back to their old state again, otherwise no radical cure can be expected. Finally, a mixture of *spirit of hartshorn*, and *tincture of salt of tartar*, should be given, to promote an equal distribution of the blood to all parts of the body.

Suf-

Suffocative Catarrh.

THIS disease consists in a copious eruption of a *serous*, and *mucous* humour, into the vesicles of the *lungs*; which takes its origin from a sudden congestion of humours about the breast; and a flaccid, and weak state of the breast and lungs.

This disease is not to be confounded with the *spastic asthma*, nor with a moist cough, treated injudiciously with *expectorants*, and *opiates*; nor with that sudden oppression of the breast, which is brought on by the striking back of *rheumatic* humours, or cutaneous *exanthemata*; or the stopping the discharge of old *ulcers*: all these, though they have something of the general appearance of the suffocative *catarrh*, and are therefore mistaken for it by the less judicious, yet differ greatly, and essentially from it, in several points. Another disease, with which it is also confounded, is that *asthmatic* anxiety, which attends young
and

and plethoric persons, who are unhappily labouring under a latent *scirrhus*, or *vomica* of the *lungs*. The suffocative catarrh differs as widely from this, as from any of the others; but as the cause of this is seldom guessed at first, it is liable to misconstructions. Others have confounded this disease with a convulsive *asthma*. These distempers are, in a great measure, to be distinguished, by the habit of body of the persons afflicted with them; plethoric persons, who abound in rich *blood*, being very seldom subject to this disease, though frequently to the convulsive asthma. They are also distinguished from the abundant afflux of matter in the suffocative *catarrh*, and by there being none in the convulsive asthma. In the *catarrh* of this kind, there is a relaxation of the tone of the muscles of the breast; but, on the contrary, in this kind of *asthma*, they are continually contracted into convulsions: and hence there is, in this case, rather an actual pressure, and cohibition of respiration, than an impotence of it; which is truly the case in a suffocative *catarrh*. In this case also there is a remarkable loss of strength;

strength ; whereas, in the convulsive *asthma*, there are violent efforts, and strong palpitations of the heart. Some have also busied themselves, in determining the differences between a *serous apoplexy*, and a suffocative *catarrh* ; but this is not necessary, since they very often concur, and make but one disease : but when the *serous apoplexy* comes alone, it is known, by having been presaged by disorders of the head, redness, and lippitude of the eyes, a dull and heavy *cephalea* ; and a foaming, or voiding of frothy matter by the mouth.

This disease always seizes the patient at once, without any previous notice : his breath becomes extremely difficult, and the fulness of the breast is easily distinguished by a sound, or rattling of a frothy matter, at the time of drawing the breath. There is an immediate debility, and loss of strength, and spirits, as the patient calls it ; but there is, in reality, a *spasmodic* tension : there follows this a restlessness, so that the patient cannot suffer his limbs to lie a minute in the same posture or place ; and there is always a despondency of
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the mind, and the patient thinks he is certainly going to die. There is usually either no *cough* at all, or, at the most, only a slight, and insufficient one, and the strength to cough is wanting. The breast, and even the ribs, are sensibly affected by this disease, and the eyes look red, and tumid.

Scarce any one is seized with this disease, except such as are troubled with habitual *catarrhs*; or have, for many years, been subject to defluxions from the head, upon the *fauces*, and *lungs*: and the persons most of all subject to it, are old men of a *phlegmatic*, and *plethoric habit*; or are of that kind of temperament, which subjects people, at other times, to *palsies*, and *apoplexies*. Lean persons are scarce ever afflicted with this disorder, unless they have long laboured under a violent cough, or have ulcerous disorders in their *lungs*. Young people are also very little subject to this disease, except such only as are very corpulent, and *phlegmatic*; and already habituated to large defluxions of this kind. Infants, also, which are very fat, and have had a sudden suppression of their natural sweats, sometimes

times fall into this disease; but with them it is not so violent.

The occasional causes of this disease are seen in what has been already observed; but its true *origin* is to be sought for in the head, not in the breast, or lungs: yet, though it is easy to see, what may occasion a congestion of *serous humours* in the upper parts, it is difficult to say how the *lungs* become rendered fit to receive it all at once, in this dangerous manner. It is accidentally brought on in children, as well by the repulsion of their cutaneous eruptions, as by the stopping of their sweats; and in grown people, from the omission of habitual *bleedings*, from coldness and dampness of the air, from frequent *drunkenness*, and from an injudicious treatment of cutaneous humours, and particularly from drying up discharges of *rheum* from the eyes.

It is a very terrible disease, and very speedily proves fatal; for the patient, if not relieved, usually dies in twenty four hours. Sometimes it degenerates into a *fever*, and the patient seems cured by the change; but the remedy, in this case, proves as bad as the disease;

disease : for the *fever* generally becomes a settled *hectic*, attended with great difficulty of breathing ; and, finally, carries off the patient, after making him endure, for some time, a life of terrible pain. Sometimes it goes off into an *asthmatic* laxity of the breast, attended with a *cough*, and a continual discharge of mucous matter by spitting ; and, sometimes, into an absolutely *cachectic* flaccidity of the body : and in general, if not carefully treated from the beginning, it either entails some of these disorders upon the patient, or else leaves him so poor and weak a constitution, that he becomes easily liable to all the disorders of this kind, from the slightest occasions.

Grown persons are sooner taken off by this disease than young children ; with whom it sometimes continues above a week, or a fortnight. In old people, the fatal event of this disease is so sudden, that it is often dubious, whether it were this distemper, or an *apoplexy* ; and in general it seems probable, that many of the persons, said to die of *apoplexies*, die,
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in reality, of the violent attacks of this terrible disease.

In the time of the fit, a stimulating *clyster* must be given, made of a decoction of *marjoram*, and other warm herbs, with *colocynth*, in order to abate the infarction of the breast, and give a new course to the matter that might add to it; and when there appears to be a *plethora* besides, a vein must be immediately opened after the clyster. After this, if the stomach be nauseating, and uneasy, an *emetic* is to be given, with a grain or two of *gamboge*, to carry off the humour by the bowels: and all this time there may be *frictions* and *sinapisms* applied to the lower extremities; and finally, to attenuate and dissolve the mucous *stasis*, gentle *alexipharmics*, and *sudorifics*, such as the essence of *succinum*, tincture of *salt of tartar*, and *tartarized tincture of antimony*; and all *nitrous* medicines are also of the greatest use to prepare the humours for evacuation.

As soon as the fit is over, corroborants are to be given, and all such things as can restore the parts to their due tone: of this number
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are the milder *chalybeates* and the *bark*; and, with these, *analeptics* are to be given; to recruit the flesh, and strength; such as emulsions, *asses milk*, and a proper diet: and, for such as are used to wine, the richest wines in moderate quantities, and the highest foods will be of service. But if there be perceived a *fever*, after the other symptoms are gone off, this must be cured by gentle *alexipharmics*; and by powders of *nitre* and the absorbents: and if a chronic indisposition seems left behind, then the gums, which act as discutients, are to be given for some time; such as the *ammoniacum*, and *sagapenum*; and a warm regimen is to be recommended. And finally, to prevent a return of the disease, bleeding will be necessary in the *spring* and *autumn*, and purging medicines taken in the intermediate times: the patient must also avoid all violent passions of the mind, and must never sleep in a damp *air*. We are not to fear bleeding in the time of the fit, because of the patient's complaining of want of strength: for as the danger of suffocation is sudden, and imminent, it must be suddenly removed; and,
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when that is done, the patient's strength will return in good time : the same is also to be alleged in favour of the violent *vomits*. In people of a phlegmatic habit, bleeding is not necessary, nor proper ; but in these cases a vomit is safe and right, and usually gives relief ; especially if the patient have eaten heartily some little time before.

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Palsy

Palsy.

A DEFECT of muscular motion, insuperable by the will, or vital power, in any part, or limb, is called a *Palsy*; and when the sensation, or feeling, is gone at the same time, it is called a dead palsy. Sometimes it remains in a small degree, with a numbness, and a slight pricking sensation.

Its proximate cause is, whatever obstructs the animal spirits, or the arterial fluid, from passing into the paralytic muscle; and every other cause that creates an *apoplexy*.

Its more remote causes are very numerous: as a pituitous, thick, glutinous, and sluggish nature of the fluids; or a compression on the brain and nerves, so that the blood and spirits cannot flow freely through them: and a suppression of all usual evacuations.

The steams of *arsenic*, *antimony*, *mercury*, *quick-lime*, *lead*, and other poisons, are productive also of many *paralytic* disorders.

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This distemper, therefore, arising from so great a number of different causes, which consequently produce many different effects, is adjudged, by the degree of magnitude, and the difference of the part affected, to be more, or less dangerous; curable, or incurable.

A *palsy* of the heart, lungs, muscles of the throat, and those serving to respiration, kills very soon: of the stomach, intestines, and bladder, very dangerous. That of the muscles of the face is easily changeable to an *apoplexy*: *paraplegia* is also the forerunner of an *apoplexy*; and *hemiplegia* is a-kin to it, and frequently terminates in the same distemper. That which is accompanied with a coldness and wasting of the part, is seldom curable; and that which comes with a strong convulsion, and great heat of the opposite side, is bad also.

Nature has cured this disease, by attenuating and dissipating means: by loosening the impacted matter, with the help of a great fever; stirring it, by a convulsive motion of the part, and carrying it off by a profluent diarrhoea.

The cure consists in the removal of the cause which obstructs the function of the nerves, and arteries; and in restoring the free influx, and reflux.

This is to be attempted by warm attenuant, and discutient remedies; with a stimulant force, to create a trembling of the *nerves*, and raise a beneficial fever, sufficient to stir up great motion, and sweat.

This is to be affected by *aromatic*, *cephalic*, and *nervine* medicines: dry *friction*, *cupping-glasses*, *blistering*, &c. and copious stools, procured by means of large doses of *mercurius dulcis*.

Care must be taken that all topical remedies be applied, to the seat of the cause, as near as possible; which the knowledge of the muscles and nerves, will easily demonstrate.

Paralytics, considered in a chronical state, require a different method of treatment: instead of blisters, issues in the nape of the neck, made with *caustics* above the *scapulæ*; warm, and moderate cathartics; aromatic strengtheners, with *chalybeates*; and the help of *Bath waters*, *friction*, and *sea-bathing*; added to
a regi-

a regimen of diet, consisting of *milk*, *white meats*, and *vegetables* ; with proper exercifes, and focial recreations ; have been found truly beneficial to many people languifhing under this diftemper, by reftoring health, and ftrength, fufficient to make life tolerable, and not uncomfortable, for many years.

De Haen boldly mixes *nepenthe* with purgatives, whenever they are indicated ; that, by relaxing and appeafing the too contracted, and irritated nerves, they may do their office more eafily.

Epilepsy.

THIS is a convulsion either of the whole body, or of some of its parts; attended with a deprivation of the senses, and understanding; and returning, from time to time, by paroxysms.

The patient seized herewith, falls instantly, and suddenly down; or rather, as it were, throws, and precipitates himself violently on the ground. When down, he grinds his teeth, foams at the mouth, and frequently shakes his head; his arms, legs, neck, back, &c. either becoming rigid, or variously distorted: and as all the parts are in a violent contraction, there is frequently an involuntary flux of urine, semen, and fecal matter. After some time, he returns to himself; only retaining a head-ach, heaviness, weariness of the limbs, &c.

The cause of this disease, *Boerhaave* attributes to too much action of the brain on the
motory

motory nerves, and none on the sensitive ones. Some are pleased to account for it, from the abundance of sharp humours mixing with the *animal spirits*, and giving them extraordinary and irregular motions, and directions; whence arises its distinction from a syncope, and apoplexy, which take away all motion, as well as sense.

The *epilepsy* is either *idiopathic*, or *sympathetic*: it is *idiopathic*, when it arises merely from a disorder of the brain, or spirits; and *sympathetic*, when it is preceded by some other disease, which brings it on.

This distemper sometimes hangs many years on a person, without much danger; though, when its *paroxysms* return fast, it renders the patient more or less *paralytic*, *delirious*, or *stupid*. In young people, there are hopes of its going off about the time of puberty. *Hippocrates* observes, that, when it seizes a person after five-and-twenty years of age, it lasts for life; but this does not always hold.

The *epilepsy* owes its origin to so many different causes, that it is extremely difficult to find out the method of cure; and the same

remedy which succeeds in one case, often fails in another. After proper evacuations, however, by bleeding, vomits, and purges, the principal remedies to be depended upon, are the *bark*, and fresh *valerian root*, taken to the quantity of a dram, twice a day, for three months; with the cold bath, and exercise; and then to be repeated three or four days before the *lunations*. The *cardamine* has been often given to advantage, to the quantity of a dram, three or four times a day: *musk* and *cinnabar* are extolled by many, and, from ten to twenty grains of each, may be taken morning and night, for some weeks. Three or four grains of *asa fætida*, or the *gum pill*, given for several nights, going to bed, have been very serviceable; and the following tincture, given to a dram, or more, has been an approved medicine:

℞ As. fæt. ℥ij.

Fulig. è lign. duræ et splendent. ℥iij.

Spt. Vin. Gallic. ℥ij. Sæpe agitando f.

Tinctura.

In all disorders of the head, great attention

tion should be paid to the stomach ; which, being loaded with viscid, or bilious matter, frequently contributes thereto. When this is the case, medicines are in vain directed, till the stomach has been properly cleansed, by repeated vomits ; and afterward strengthened with *elixir of vitriol*, and the *biera picra* tincture, taken twice a week, to the quantity of four, or six spoonfuls.

The fit is said to be prevented, by stretching the *jaws* to the utmost, by means of a piece of metal, or strong body, introduced between the teeth : this should be done as soon as the fit approaches, before the jaws are locked. A square piece of iron, or steel, of such dimensions as are adapted to the widest distention of the *jaws*, and fitted to a handle, would be convenient for this purpose ; and, as such sort of application has been attended with success, and is easily put in practice, it is certainly worth the trial.

After all, we find, indeed, from daily experience, and also from examining the records of medicine, that the cures that have been made, have mostly been performed
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either by change of *air*, such as going from a cold to a hot climate; by some remarkable change of life, or some accidental disorder, or by issues or drains, or by the removal of some acrid, or irritating substance; in short, that those medicines called specifics, have in general but little share in the cure.

To recover a person in a fit, *tobacco* smoak, or that of burnt *feathers*, is recommended. *Barbette*, above all things, directs the flowers, and spirit of *sal ammoniac* against this disease: *Crato*, native *cinnabar*: Sir *John Colbatch* has an express treatise on the *mistletoe* of the oak, to shew, it as specific in this disease.

M. Poupert, from the dissection of an *epileptic* person, wherein, immediately under the *dura mater*, was found a deal of white, thick, viscid pituita, glued, and, as it were, incorporated with the membrane, thinks, that this might be the cause of the disease; the excessive quantity of such thick *lymph*a, loading the brain, and obstructing the necessary motions. The first cause, he judges, might be the sponginess of the *dura mater*, which imbibed the serosities of the brain.

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He adds, that he knew an *epileptic* person, who, upon the first approach of his disorder, rubbed his forehead with his hand, and bent his head as far backward as he could, resting it against a wall ; and by that means secured himself against the convulsion. It is probable, that, by this; he gave a motion to the *lymphæ*, and drove it from the place which before it disturbed.

Sal vitrioli alone, given to a patient, from three grains to half a scruple, twice-a-day, has proved a cure for this distemper, without producing any ill effect.

In a *sympathetic epilepsy*, the disease which is the cause of it, must principally be had regard to ; for on that the curative means are chiefly to be grounded.

Spasmus

Spasmus Cynicus.

THE *Cynic Spasm* is a sort of convulsion, whereby the patient is brought to imitate the gestures, snarlings, howlings, &c. of a dog.

Dr. *Freind*, in the *Philosophical Transactions*, gives an account of a very extraordinary spasmus of this kind, wherewith two families, at *Blackthorn*, in *Oxfordshire*, were seized.

The novelty of the thing drew abundance of visitors to the village; and, among the rest, Dr. *Willis*, who, a good while before he reached the place, heard a terrible noise of barking and howling. Upon his entering the house, he was saluted by five girls, bawling, and answering each other by turns, with violent motions of the head. In their faces there was no convulsion seen, beside *cynic distortions*, and *oscillations* of the mouth: their pulse was pretty regular; their noise
was

was rather like that of the howling, than of the barking of dogs ; only that its returns were more frequent, with deep sighings between.

The *spasmus* had seized them all equally ; whereof the youngest was but six, and the eldest fifteen years of age : at intervals, they had their reason, and senses, entire ; but not long, ere one of them returning to her yelling, set on the rest ; till at length, all fainting, they fell, like *epileptics*, on a bed laid in the middle of the room to receive them.

A little while, they would lie quietly, and decently together ; but, upon a new *orgasm* of the spirits, they began to beat, and bruise each other. Two of the youngest awaked, while the *Doctor* staid, and left their sisters on the bed ; but the *spasmus* soon had hold on them again.

In *July*, 1700. Dr. *Freind* himself visited another family, in the same village ; where a boy, and three girls, had been seized ten weeks, without any apparent preceding cause. A girl had it first ; and the rest, as the mother informed him, were so struck with their sister's disorder, that they too were seized.

seized. At his arrival, they were all at play, very briskly, and unconcernedly before the doors : at length the eldest girl, about fourteen years of age, was seized as usual.

The only symptom of its approach, was a swelling of the stomach ; which rising gradually up to the throat, set the muscles of the larynx, and the head, upon their usual convulsions. This rising was a certain symptom of an approaching *paroxysm* in them all ; and if they endeavoured to stop it, it burst out with the greater violence, and held the longer.

The noise they made was incessant, and disagreeable ; yet not so much like the barking and howling of dogs, as had been given out, as a quaint kind of a song, consisting of three notes, or tones, repeated twice over, and closed by deep sighs, &c. accompanied with extraordinary gestures, and nutations of the head.

This disease the *Doctor* takes to be natural, and to rise from the common cause of all convulsions, viz. from the animal spirits growing unruly in the nerves, and driving the
muscles

muscles into various contractions, according to the circumstances of the indisposition.

The *spasmus cynicus*, and *risus sardonius*, are spasmodic affections of the nerves; and are to be removed by *antispasmodic medicines*, with a discreet use of *opium*.

Ephialtes,

Ephialtes, or Incubus.

THIS disease is an oppression of the breast, so very violent, that the patient can neither speak nor breathe. It consists in a spasmodic contraction of the muscles of the breast, usually happening in the night-time, attended with painful respiration, and great anxiety.

This distemper does not arise, as it was antiently imagined, from gross vapours filling the ventricles of the brain, but chiefly from too great repletion of the stomach, which hinders the motion of the *diaphragm*; and, of consequence, the dilatation of the breast, necessary to respiration.

In this distemper the senses are not quite lost, but they are drowned, and astonished; as is also the understanding, and imagination; so that the person seems to think some huge weight is thrown upon him, and ready to strangle him: and this is attended with so violent

violent a cohibition of respiration, that he becomes unable to move any part of his body, or to utter any distinct, or articulate sound. The whole complaint goes off, as soon as any one limb is moved; but there is often an universal lassitude left behind it, which remains for some space of time. This disorder generally attacks people in the night-time, in a sort of middle state, between sleep and waking.

Those of plethoric habits, are most subject to fall into this disease; and, among them, such particularly as have a great thickness of blood. Persons who are subject to *hypochondriacal* complaints, and to disorders of the *spleen*, are also much afflicted with it; and it is usually brought on by eating large suppers, and afterwards sleeping upon the back.

The causes of this malady arise from a stagnation of the blood, in plethoric habits, where it is thick about the *vena porta*; which Nature is endeavouring to throw off, by means of those spasmodic motions which constitute the disease: and very often crudities of the

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primæ

primæ viæ become additional causes, and exasperate the complaint.

The pressure of the *cerebrum*, on the *cerebellum*; and that of the full stomach, on the descending trunk of the *aorta*; seem, also, to be concerned in this manner: for neither of them can happen, without affecting the nerves that pass to the muscles of respiration. Without supposing one of these, it will be hard to assign a reason, why persons should be rather affected when lying on the back, than in any other posture.

Though this disorder has been commonly looked upon, as a trifling complaint; and usually left to go off of itself, or has been cured only by bleeding; yet it is much to be suspected, that many of those people, who have been found dead in their beds, actually died of it: and we have it warranted by *Cælius Aurelianus*, that it had killed many people; and also by *Symmachus*, that there was a contagious, and epidemic *ephialtes*, at *Rome*, which destroyed numbers, like the *plague*.

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When this disorder returns so often, as to occasion the patient to call in the assistance of a physician ; the method is, to give gentle purges three or four times, with the digestive medicines, such as *gum ammoniacum*, or *tartarum vitriolatum*, on the intermediate days : after this, bleeding in the foot is proper ; and then powders of *nitre* and *cinnabar*, usually compleat the cure. If they fail, the common method in *hypocondriac* cases, is to be used. When it happens from crudities in the *primæ viæ*, and the stomach is principally affected, a gentle vomit alone will perform the cure.

To prevent returns, the patients must accustom themselves to lie on one, or the other side ; never on the back.

Catalepsis.

PERSONS seized with this distemper remain stiff, as if they were frozen ; and continue in the same posture they were, when seized with it ; with their eyes open, but speechless, and senseless ; without seeing, or understanding.

Boerhaave takes the immediate cause of this malady to be an immobility of the common sensory ; whence comes an absolute stagnation of the blood in the brain, and a cessation of all its functions, as well as those depending thereon ; the *múscles* alone remaining in their first tension ; and respiration, and the pulse preserved, though generally weak.

Upon dissection, the *arteries* and *veins* of the *cerebrum* are found very turgid, and the blood close rammed in them. It is sometimes cured by copious hæmorrhages of the nose. *Sternutatories*, *vomitives*, and *vesicatories*, are likewise applied to good purpose.

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But the true causes of all these violent *spasmodic* constrictions are perhaps inscrutable ; and will continue so, till we are better acquainted with the structure of the *brain* and *nerves* ; points, which will, probably, for ever elude our researches. All we know is, that whatever irritates, or disagreeably affects the *brain*, *nerves*, or any of the most sensible parts, occasions continued *spasms*, or convulsive motions, either in the parts themselves, or in those with which they have any considerable *sympathy* ; and that, when the nervous *system* is delicate, or the irritation great, almost the whole muscles will be sometimes agitated with alternate contractions, or affected with a *tetanus*, or general rigidity.

The cure depends principally on warm *baths*, and *opiates* ; a bleeding being premised to deplete the vessels. While the patient is in the water, gentle friction should be used, especially about the neck and breast, and along the spine ; and he is to be kept in the bath, until the pulse become soft and full. When he is taken out, he must be wrapt immediately

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diately in a dry blanket, without wiping, and suffered to sweat moderately.

If the symptoms are not yet relieved, *opiates* must be repeated boldly, both as to time and quantity ; and the cessation of the *spasms*, or remission of the contractions, must be the directory ; and let it be observed, that, to suppress them, much larger doses of *opium* are necessary, than perhaps in any other disease, except the locked jaw, which is of a similar nature.

Beside opiates, and the warm bath, emollient *clysters*, with a large proportion of oil, should frequently be injected ; not only to empty the intestines, but, as an internal fomentation, to relax the constrictions of the bowels.

In the *tetanus* the same method should be used, and the belly be frequently fomented with flannels, squeezed out of an emollient fomentation.

There are some milder species of these spasmodic disorders, that will submit to the usual antispasmodics, as camphor, castor, valerian, asa foetida, and musk ; particularly, the
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latter, given in large quantities, viz. half a dram every four or six hours, has succeeded, when all others have failed: and some advise blisters to the spine, and bathing with oil of amber.

We shall conclude with observing, that such medicines as are found by experience to be useful in spasms, and alternate convulsions of the muscles, seem to produce their good effects, by that stimulus which they communicate to the nerves, especially those of the stomach and intestines, whose large plexus's and ramifications are very considerable, and have a remarkable sympathy with almost every part of the body.

We frequently observe that a dram of brandy, by stimulating the nerves of the stomach, before it can have passed into the blood, will almost instantly lessen a tremor of the hand: why then may we not account for the action of other stimulating medicines in a similar manner, in controuling spasms, and other convulsive motions, how remote soever from this organ?

The influence of the stomach in the
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animal œconomy, is greater, perhaps, than it is generally imagined; as the whole system is either invigorated, or affected with a languor, according to the different disposition of the nerves. And it is the opinion of a very ingenious modern, that, in the cure of chronic complaints, however distant their seat may be from the stomach, those will have the greatest success, who attentively consider the present state of this organ; and that much the greater part of these distempers seem to have been removed, rather in consequence of the medicines given, having had a certain effect on the stomach, and thereby enabling Nature to do her own business, than by any specific operations on the particular seat of the distemper.

When you expect a *tetanus* coming on in children, evacuate gently by stool, and give small doses of musk and opium; and you will prevent the bad consequences of an approaching fit.

Perhaps gentle evacuations by the bowels, are, in the general, found to answer better for convulsive maladies of all sorts, than any other means whatsoever.

Tetanus

Tetanus.

TETANUS is an universal convulsion, or rigidity, seizing the whole body at once; whereby both the fore and hind muscles of the head are rendered rigid and inflexible, so that it can neither bend one way nor the other.

Emprostotonos.

Emprosthotonos.

THIS is a convulsion of the neck, bowing the body forwards ; so that the chin is bent down to the chest, and the knees and hips drawn up to the belly ; which continues thus for some time.

Opisthotonos.

Opisthotonos.

THIS is a convulsion wherein the body is bent backwards, so as to form a kind of bow. In which sense the word stands opposed to emprosthotonos, where the body is bent forwards.

The opisthotonos arises from a tonic motion of the muscles of the posterior parts of the body, especially those on the back of the head.

Risus

Risus Sardonicus.

THIS disease is a convulsive contraction of each jaw. It is a forced, spiteful laughter ; or a laughter that does not go beyond the teeth.

The phrase is by some said to be founded on this, that in *Sardinia* there is a *venomous* plant, which occasions such a contraction of the muscles of the face in the persons it kills, that they seem to die laughing in this manner.

Priapismus.

Priapismus *.

THE immediate cause of a Priapism is the heat, pungency, or acrimony of the *semen*, accompanied with a convulsion of the muscles of the part, which compressing the veins, and cavernous bodies, prevent the return of the blood.

The more remote causes are, too hot, sharp, stimulating foods: *cantharides*, also, are found to perform the same effect, but with much more violence. There are instances of people, especially old men, who, by making use of *cantharides*, to enable them to satisfy their passions the better, have been seized with a priapism, which has been followed with universal convulsions, and even with death.

* The term is derived from *Priapus*, a fabulous deity, particularly adored at *Lampsacus*, the place of his birth; who, for the extraordinary size of his parts, was exceedingly revered by the women; insomuch that the Scripture seems to tell us, that king Aza dethroned his mother Maachab, because she had consecrated a grove to Priapus, and presided at his sacrifices. 1 Kings, chap. 15. ii. Chron. chap. 15.

Dr.

Dr. *Boerhaave* remedied this princely malady, as he has called it, by the powers of *nepenthe* :

“ *Exhibeantur guttæ xv. saccharo instillatæ, repetitis vicibus, ad refrænandam basilicam hanc morbi speciem.*” M. S.

Mala Obferata, or the Locked Jaw.

THIS disorder is most commonly the effect of some external injury, whether the part which is hurt be near, or at a distance; though it may arise from various other causes.

Opium given in considerable quantities, and often repeated, is the only known remedy to subdue this painful, and most obstinate distemper, assisted by warm-bathing once or twice every day.

Mr. *Ballentine*, an officer in the army, by a large wound, made with a broad-sword, on one side of his face, had this malady in a most severe manner.

He was ordered to begin the cure with a grain of *opium*, and to increase the quantity to two grains, every four hours.

A *clyster* was given every morning; and his neck and jaw anointed with a liniment, made of *opium*, *camphor*, and *sweet oil*, once every

every day. He remained daily, in the *warm bath*, half an hour ; and some days, repeated it again a second time.

By which means this stubborn disorder was subdued ; but not before he had taken near forty grains of opium.

He took afterwards one dram of the *bark*, in a cup of *new milk*, three times a day ; and repeated it between whiles, to prevent a relapse.

The

The Cramp.

TH E Cramp is a kind of numbness, or convulsion, occasioned by a thick viscid vapour entering the membranes of the muscles, which contracts, or extends the neck, arms, legs, &c. with a violent, but transitory pain. It is usually driven off with friction alone.

Of the Palpitation of the Heart.

THIS disease consists in an irregularity of the motions of the heart, whereby it is driven with violence toward the ribs; and, in its contraction, attended with a great feebleness of the pulse.

There are several degrees of this *palpitation*: it is sometimes so impetuous, as to be heard, and even seen by the by-standers. The trepidation, or trembling of the heart, differs from the palpitation, or panting. In the former, the pulsations are faint, slow, and faltering; in the latter, the shakes are immoderate, violent, and convulsive.

The cause of the palpitation, according to *Boerhaave*, is usually an inordinate, and forcible influx of the *vital spirits* into the villi of the heart; as in violent passions, sudden fear, hysteric affections, strong and hasty motions. Sometimes it is owing to an irritation
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of the fibres of the heart, occasioned by some sharp stimulus; as an inflammation of the heart, or pericardium; or some other disorder thereof, from a stone, worms, hairs, an aneurysm, or the like. Sometimes it arises from a thick, copious, polypous blood: and sometimes from the arteries being become cartilaginous, or bony; or their extremities being obstructed therewith.

It is sometimes, though rarely, *idiopathic*, or a disease in itself, and not dependent on any other; but it is usually symptomatic, and merely an attendant on other disorders. In general, we are to consider it distinctly, as a disease, or at least a symptom of one, from the commotions of the heart, which we occasionally bring on by running, or any violent exercise, which throws the blood into commotions.

Besides what we have already observed, it is to be remarked, that the passions of the mind very frequently occasion this disorder: thus sudden fear, surprize, a suppression of anger, and the like, will, at any time, bring

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on a palpitation, without any other cause. A high diet, with a sedentary life, often occasions it ; and in young persons, not arrived to puberty, it is often found to be caused by worms bred in the intestines.

According to M. *Pison*, a Doctor of the faculty at *Paris*, the palpitation of the heart, may arise, either from a too abundant serosity thrown into the ventricles of the heart, from the grand vessels which furnish the blood from the lungs ; or from too great a quantity of water contained in the pericardium ; by which means, the heart being straightened, and disabled from moving with its usual freedom, is obliged to make several jerks or half-beats, instead of the regular motions it had before : and this too great extension of the *pericardium*, by water, has been found to be in the bodies of most of those which had been opened after the disease.

The beginnings of complaints of this kind, and the slighter cases, while they continue so, are attended with no great danger ; but when the disorder grows into a habit, it is not only
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very troublesome, but very dangerous. When more causes than one conspire to produce it, it is not only more violent, but the patient is more subject also to relapses; and, in the end, inflammations, *polypuses* of the heart, infarctions of the *viscera*, *fevers*, &c. Finally, when an habitual palpitation of the heart has been brought on by terror alone, it always proves very difficult of cure, whatever means are used.

For the cure of this malady, after bleeding sufficiently in the foot by a large orifice, the *primæ viæ* are to be first cleansed by infusions of *rhubarb* and *senna*; and the blood is to be attenuated by drinking plentifully of warm and weak liquors, with moderate exercise. Then some of the gentle *alexipharmics*, with the spring juice of *brook-lime*, and *water-cresses*, are to be administered. Finally, there are to be given such things as promote an equal distribution of the blood and humours, as mixtures of *volatiles* and *alkalies*, viz. the spirit of *hartshorn*, and tincture of *salt of tartar*; and gentle anodynes, if necessary.

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fary. Beside these, *clysters* will often do great good ; as will, also, the frequent washing of the feet in warm water, and embrocations of *spirits of camphor, castor, and saffron*, rubbed on the part.

Bleeding must never be omitted in this case, for without it no medicine will be able to take effect. When a hypochondriac habit conspires in the cause of this complaint, the attemperating powders of *nitre, cinnabar, &c.* always prove of very great service. In case of a *chlorosis*, with this complaint, bitters and chalybeates usually are the approved remedies ; and when a suppression of the *menstrues*, or *hæmorrhoids*, is the cause, the bringing them to their habitual regularities, will be the cure. It is never proper to allay the motion, till the *plethora*, which occasions it, is removed ; unless where it is brought on merely by the passions, without any antecedent cause in the blood : in this case gentle opiates may be given without danger. *Steel* medicines, and the *volatile salts*, when they are given in an imprudent manner, always make the disease worse,

worse, instead of doing any thing towards a cure. Finally, a change of a sedentary life, into a moderately active one, will do more than any medicine.

Cephalalgia, and Cephalæa.

Physicians commonly distinguish the head-ach, according to its degree and continuance. The gentlest kind, they call *cephalalgia*; and the more violent and obstinate, *cephalæa*.

Cephalalgia is distinguished to be of two kinds; the *idiopathic*, and the *symptomatic*.

The *idiopathic* is defined to be a pain of the head, proceeding from a copious congestion of the blood and humours to that part: the *symptomatic* is that which arises from a fault in the *primæ viæ*, communicating with the head, by means of the par vagum; or from a translocation of the humours of the head, in fevers, or other disorders.

The *cephalalgia* sometimes seizes on the whole head; but, more usually, the forehead is the seat of it: very frequently, also, it is felt about the origin of the nose; and a weight or pressure, and burning heat, are felt also in
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the bulbs of the eyes ; so that they look red and inflamed. Sometimes the tooth-ach attends upon the cephalalgia, which, when violent, abates the pain of the other, in proportion. And sometimes there is a noise, and ringing in the ears. The face, also, looks red, and often turgid ; and sometimes is remarkably pale, or has a redness irregularly spread over it : both which cases are from strictures upon the vessels. The blood-vessels of the neck, and temples, are often turgid. Some women are very subject to this pain, as a symptom of the approach of the catamenia ; on the eruption whereof, it diminishes

People of a plethoric habit, are more subject than others to this painful disorder ; and, in general, young people, more than those in years ; and women, more than men. Persons who live high, and drink much wine, suffer much more by it, than those who are temperate, and use much exercise.

Among the natural, and internal causes ; the principal are a redundancy of blood, and a derivation of great quantities towards the head :

head : hence, Nature's intention is to relieve herself, by a hæmorrhage from the nose.

The external, or accidental means, that may bring on this pain, are very numerous : the natural, and habitual evacuations of blood, being supprest, as the *menfes*, *hæmorrhoids*, *bleeding at the nose*, and the *neglect of accustomed bleedings* : besides, the omission of taking *purging medicines*, at customary times : great commotions of the body, and passions of the mind ; drinking spirituous liquors, attracting acrid fumes through the nose, repelling sweats, &c. and to all these may be added, an hereditary disposition, or injuries, from blows, or concussions of the head.

Nature often cures this disorder, by *hæmorrhages* from the nose ; and hence, in general, by way of substitute for her inactivity, or inability, artificial bleeding, in the cure of this disorder, ought, necessarily, to be premised.

The congestions of humours are to be derived from the superior, to the inferior parts ; and, therefore, the bowels are, next, to be loosened,

loofened, by *clysters* and *purges*; for the body is usually bound up in these disorders. After this, medicines are to be given to quiet the violent emotions of the blood; such as powders of *nitre*, *crabs eyes*, *calx of antimony*, with a little *cinnabar*; together with the diluent infusions of the common tea herbs, *baum*, *sage*, &c. and, if the pains are excessive, a gentle opiate may be added.

External applications assist also the use of internal medicines; of this kind are *spirit of wine camphorated*, with a small admixture of *saffron*: this sometimes almost instantaneously removes the pain. Coarse bread with *juniper berries*, *carraway seed*, and *salt*, applied, as an *epithem*, is, also, sometimes, a present help; and bags of the *aromatic* ingredients, reduced to a gross powder, are, though a flower, yet often a very valuable relief. All these are only to be used in the *idiopathic* head-ach; for, in the *symptomatic*, regard is to be had only to the principal disorder; and when the cause is removed, the effect ceases.

After the fits of the head-ach are over, it is proper, by way of prevention, to bleed in
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the spring and autumn, and frequently to bathe the feet in warm water. The use of gentle exercise is greatly to be recommended. The fatty or oleaginous remedies, prescribed by some for rubbing on the head, are to be carefully avoided, as they stop up the pores, and prevent perspiration. The smelling to pungent liquids is not of so much benefit, as has been usually supposed; for it is rarely that they do more than give a momentary relief; and probably they are often the cause of a fresh derivation of humours to the part.

The *cephalæa* differs only from the former malady, by its obstinate continuance, and the violence of the pain. When it arises from a venereal taint in the blood, it is always violent; but most so, when the patient is warm in bed. When it arises from a *scorbutic* coagulation of the blood, or an inflammation of the *meninges* of the brain, the pain is remarkably sharp and piercing; and is attended with a febrile heat, and an intolerable thirst. There generally comes on a vertiginous disorder of the head, after this complaint has
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held the patient some time, so that he cannot bear any motion; for, on the least shaking, or disturbing of the head, the pain becomes violently intense, with a strong pulsation. The pain is, in general, less violent, while the patient lies down; but as soon as the head is raised up, ever so little, it increases to a great degree. The least noise, or motion, is terrible to persons in this state; and the light is frequently offensive, and painful: so that the patient loves retirement, in darkened and quiet rooms, and avoids company. Liquors of any strength, give violence to the pain, as soon as drank: and, in cases of this kind, when frequent and large bleedings at the nose happen, they give no lasting relief, but only an abatement of pain for the time.

Women are generally more subject to this terrible pain, than men: for they are rarely afflicted with it, unless when there is some violent disorder, in regard to the *hæmorrhoids*; or when there is a venereal taint in the blood. Among women, those are subject to it who live high, and lead sedentary lives; and who
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are of a melancholy disposition, or subject to obstructions of the menses.

The general cause of this, as well as all other head-achs, is a violent congestion of blood to that part; and the peculiar causes which determine the head-ach to this terrible kind, are ulcerose, or exulcerated dispositions of the body: these principally are owing to the scurvy, the *venereal* disease, or any violent cutaneous eruptions driven in; or to external injuries, as blows, and wounds of the head, ill treated. The ancients supposed this owing to impostumes, or collections of a viscid matter in the head; and therefore always prescribed *blisters*, *setons*, and the like, and sometimes the piercing of the *skull*, in the part where the pain is most violent.

In the most favourable cases, this is a distemper that with difficulty admits of a cure. Where there is a simple ulceration in the case, the cure becomes yet more difficult, but not quite to be despaired of; but where a venereal taint is at the bottom, a cure is scarce to be expected: for though the cause be removed,

moved, yet in this, or any other kind of cephalæa, attended with a caries of the bones, the pain will afterwards often return, and that with little less violence than before.

Those *cephalæas* which sometimes are relieved by Nature, by copious discharges of ferous humours, are more difficult of cure than others; and those which happen to persons of remarkably plethoric habits, threaten an approaching apoplexy.

The same general method is to be observed as in the cure of the cephalalgia. But, in this, there is to be added, to the medicines there prescribed, such as powerfully dissolve mucous humours: such as the roots of pimpernel, arum, and masterwort, with the bitter herbs; saffrafras, *gum ammoniacum*, *tartarum vitriolatum*, and the like. After these, purging is proper; and in cases where the scurvy, or any venereal taint is joined, there must be always regard had to those complaints, in the whole method of cure. And indeed the scorbutic *cephalæa* should be always treated as the scurvy itself; and

and the *venereal cephalæa*, as the *pox*. And where any old *ulcers* have been dried up, or any other habitual discharge stopped, and the complaint is owing to that; the making issues, or setons, must be premised to any other attempt of cure. Some inveterate complaints of this kind have been happily cured by *mercury*, whether they had, or had not any venereal taint in their foundation; and, in general, a salivation is a sort of last resource, be the origin what it will.

Clavus

Clavus Hystericus.

THIS is a peculiar species of head-ach, more frequently attacking women than men; and, with them, usually owes its origin to a suppression of the *menfes*. In some cases, the pain only attends people during the three or four first days of their menstrual discharges, and is less violent: in others, it is much more severe, and almost continual; and when to the common causes of it, there is added a *venereal* taint, which is no uncommon case, it becomes then the most grievous of all pains in the head.

The patient is seized with a piercing pain about the forehead, or temples, resembling that of a *nail* driven into the head: the pain sometimes extends itself over the whole head: with this, there is generally a sensation of pain, about the *sagittal future*, in particular, and a remarkable coldness there: often there is an inflation, and redness of the face; with

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a noise,

a noise, and ringing of the ears. To these there are not unfrequently added a slight *fever*, a chillness of the extremities, a remarkable lassitude, and want of appetite ; with frequent *eruētations*, and *nauseas*, and a *costiveness* of the bowels. It generally returns about the time of the *menfes*, or, in cases where it is continual, it rages with more than ordinary violence at that time.

Among the natural causes of this terrible pain, the most powerful are, an excretion of blood towards the head, and a stoppage of the *menfes*, and of the discharges by the hæmorrhoidal veins, by injudicious treatment.

Nothing can give physicians greater trouble, or expose the insufficiency of the art of healing, more than the head-achs to which women are subject. The manner of life of the patients is, however, more in fault in these obstinate cases, than either the *nature* of the disease, or the skill of the prescriber : high living, and idleness, have too many charms, to be quitted easily by those who can enjoy them ; and, therefore, while the cause always subsists, the cure can be only
palliative,

palliative, or *temporary*, the disorder always returning after a time: yet it is certain, by experience, that the most terrible, and inveterate disorders of this kind, may be removed so as not to return, by the use of proper medicines, and a thorough change in the diet, and manner of life of the patient.

The first care in this respect is to keep the bowels lax, for they are almost naturally costive in this disease; for which purpose, emollient *clysters* are most convenient: and where purges are required beside, they must be always of the most gentle, and least vellicating kind. After these, the violent emotions of the blood are to be quieted by powders of *nitre*, *diaphoretic antimony*, *crabs eyes*, and *cinnabar*; and if there be a spissitude in it, the neutral, and diuretic *salts*, are to be given, in a scruple at a time, every day. *Tartarum vitriolatum* alone, given in this manner, frequently has a very good effect. If it be found necessary, beside this, a gentle *opiate* may be sometimes given, such as a small dose of the *storax pill*; and, externally, *spirit of wine* and *camphor* is not a little serviceable. By way of

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prevention,

prevention, it is extremely proper to bleed at spring and autumn every year; and, above all things, to keep regular in regard to the *menstrual* discharges. Gentle purges are to be given at times, and exercise necessarily to be advised; and this should always be the more insisted upon, the more averse the patients are to it, and the more they love to indulge in a *sedentary course*.

Phrenitis.

Phrenitis.

THIS is a constant, and vehement *delirium*, or distraction ; accompanied with an acute fever, and raving ; with a quick pulse, and strong respiration : the eyes, and face are red ; and the patient, when asked questions, answers with *ferocity*.

It differs from melancholy, and madness ; in that these are without fever.

The most frequent causes of this distemper are, the violent heat of the sun ; excess in wine, or spirituous liquors ; and strong passions : so that the disease may be properly styled, an inflammation *both of body, and mind*.

Dr. *Willis* will have this, and the *paraphrenitis*, to be the same disease ; and to consist in an inflammation of the *animal spirits*, with this distinction ; as the inflammation arises from the *cerebrum* alone, or the *cere-*

brum and *cerebellum* together : and concludes, that they both arise, in a fever, from the boiling blood's throwing its adust recrements into the *brain*. Others define this to be an inflammation of the *meninges* of the brain ; but that, of the *diaphragm*.

Boerhaave makes the *phrenitis* either true, wherein the *cerebrum*, or *meninges*, or both are inflamed ; or symptomatic, where the matter of the fever is translated into the *cerebrum*.

The true one either kills on the third, fourth, fifth, or seventh day ; or it changes into a *mania*, *lethargy*, *comus*, &c. Tremors, gnashing of the teeth, and grumous blood, distilling from the nose in this case, are prognostics of death.

This disease is most frequently the effect of inflammatory, or malignant fevers ; though it sometimes arises from a suppression of the natural evacuations, as the *menfes*, &c.

The cure is the same, as of an *apoplexy* ; but where the evacuations are concerned, they must be first rectified.

Bleeding,

Bleeding, in this distemper, is essentially necessary : it should be to a large quantity, and in the foot : if the fever continue, it must be repeated ; and it will be right, after the first bleeding, to open one or both of the *jugulars* : the bleeding must be repeated till the extreme heat, and violence of the *delirium* is abated ; and gentle cooling physic should be given, as in other inflammatory cases. A scruple, or half a dram of *nitre*, should be taken every three hours, in barley water, *baum* tea, or the common *emulsion* ; and a *clyster* should be given, every night and morning, when the physic is not taken, of a decoction of bran and mallows, with two drams of *nitre* dissolved therein, and two spoonfuls of *honey*, and one of *vinegar*.

But if no recess of symptoms is distinguishable, in consequence of these evacuations ; it will be proper to shave, and blister the patient's head ; and apply frequently compresses of linnen cloth, dipped in *vinegar* and water, over his forehead, and temples : mean time the air of the bed-chamber should be

cool and temperate ; and he ought to be kept sitting upright in his bed, with his head raised as much as possible ; and taken out of bed twice a day, to sit up, and bathe his feet, for a quarter of an hour, or more, each time, in warm water. After the night-bathing, a poultice of horse-radish, mustard seed, and linseed meal, beat up with a little common *salt*, and *vinegar*, should be applied to the soles of the feet, and continued on 'till morning : or blistering plaisters may be applied to the legs.

During the whole time of the illness, the patient must be confined to plain barley-water, or water-gruel : no broths should be given ; and anodyne medicines should be carefully avoided, while the symptoms continue violent.

At the beginning of this dangerous disorder, all the remedies above recited must be vigorously employed ; but when the heat and *delirium* are considerably diminished, *bleeding* and *clysters* are no longer necessary ;
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but the *nitre* must be continued, and the nourishment may be a little stronger.

Notwithstanding the diminution of the *symptoms*, the *dilirium*, sometimes, does not entirely give way; but it commonly decreases insensibly, on the patient's sitting upright several times a day, in an armed chair.

Mania.

Mania.

THIS is a most violent, and acute species of *delirium*, arising from a perturbation of the imagination and judgment.

As often as the species of things, where-with we have been acquainted, are hurried together, we may be said to dream; and thence, in sleep, these species are added with other things, and variously compounded, from the manifold repercussions of the animal spirits, which arise from the cause producing sleep, and pressing the nerves, so as to revert the fluctuation of their juice. A *delirium* is, therefore, the dreaming of persons awake, wherein *ideas* are excited without order, or coherence, and the *animal spirits* are driven into irregular fluctuations.

If, then, the cause inducing a *delirium*, be of that nature, that it can excite ideas, or motions of a considerable impetus, without any regularity, or order; such a *delirium* will be

be attended with boldness and rage, and violent motions of the body ; that is, a *mania* will be produced.

The signs of madness are, a bold, and resolute aspect ; and eyes suffused with blood : only it is to be observed, as to the first-mentioned symptom, that those persons, who have gone mad through fear, have always in their aspect a mixture of that terror, the object first gave ; and of that natural boldness, which arises from *madness*. The patient often lays traps, and snares, for the getting other people into his power, with intent to hurt them, though they have never injured him. Sometimes mad people have been known to murder others ; and they have always so much strength, as to over-power almost any one person : and though they have no actual fever, yet they are insensible of the external cold, and, in general, of other pains, and injuries ; nay, they are so lost in speculation, as often scarce to feel the blows, and lashes they receive, in the course of their cure. They often do not hear the people who speak to them ; and are naturally of a very
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jocund, and cheerful imagination; fancying themselves kings, and princes; and are delighted with music. They have a violent propensity to *venery*; and such an absence of shame, that they will go to stool, or do any thing of a like kind, before any body. This is the usual case, in the height of the disorder: and in its decline, some are dull and stupid; others very sorrowful and melancholy; and sensible of their unhappy disorder.

Madness arising from immaterial causes, is much more difficult of cure, than when it arises from the disorders of the bodily organs: hence, when it originates from violent perturbations of the mind, or from intense study, it is almost incurable. When it arises from suppressions of the *semen*, or of the *uterine*, or *hemorrhoidal* discharges, there is great hope of a cure, by proper means. But *mad people*, in general, when they sleep sound, and always awake in outrageous fits, are to be esteemed incurable; or, at least, greatly more difficult of cure, than others.

A brisk purge is first to be given; and, a
day

day or two after it, the patient is to be blood-ed pretty freely: ten or twelve ounces, at the least, should be taken away. After this, the senses are to be attempted to be rouzed by strong vomits. *White bellebore* was famous on this occasion, among the *ancients*; and there are some cases in which it may be given with safety, and with great good effect. After this, the violent emotion of the blood is to be attenuated, by *nitrous*, and absorbent medicines; and after these, the several remedies, usually esteemed specifics, take place: of which number are decoctions of the *red anagallis*, or *pimpernel*; the *ruta muraria*, or *white maiden-hair*; the several preparations of *silver*; the berries of the *herba paris*; *asses blood*, and the like: and great care is to be taken to bring the *hæmorrhoidal*, and *menstrual* discharges, as far as possible, to a regularity. In cases of retension of the *semen*, purified *nitre* is to be given in great quantities; and may be also externally used, applying it to the testes in a cataplasm.

The use of *opium* is scarce to be suffered in any delirium; but, of all things, it is not
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to be given in *madness*; for it never gives those patients any sleep, but enrages, and adds to their *phrenzy*, having the same effect that *strong liquors* would have upon them.

Dr. *Michelotti* relates the cure of a young man, who, after being exposed in very hot weather at sea, and having committed violent debauches in drinking, became mad, without any fever. He was cured by plentiful bleeding, starving, very weak cold drink, the cold bath, and pouring cold water on his head.

Melancholy.

Melancholy.

MELANCHOLY is a delirium without a fever, usually attended with fear, heaviness, and sorrow, without any apparent occasion. It is a species of *madness*, and only differs from a downright *mania* in degree.

This distemper consists in the perturbation or injury of the imagination, which prevents it from forming a regular and determinate idea of things, as at other times; so that its due operations are interrupted, and often second *ideas*, having no connection with the first, crowd in, and are succeeded by actions no way *analogous* to that first *idea*, and therefore appearing irrational.

The ancients attributed this distemper to black and cloudy spirits, arising, as vapours, from a redundant *atrabiliary* humour.

It is varied an infinite number of ways, according

cording to the temperament, and ideas of the person affected with it: it has, however, its more essential differences, in regard to the causes from which it is produced. In some, it seems wholly to depend upon a false *presfiguration*, and judgment of things in the mind; and in this case it is usually habitual, and incurable. In others, it arises from injuries of the body; and in these, it always is observed to bear a proportion to the injury, or debility, of the parts. This peculiar species, is called *hypochondriac* melancholy. And, finally, in others it seems of a mixt nature; as when it has taken its first origin from distempers in the body, but is afterwards so increased by *mental* disorders, that even, after the total removal of the corporeal ones, it still remains in its full force upon the *mind*.

The signs of this *malady*, are a perpetual anxiety of *mind*, without any rational cause; a distaste, and dislike to every thing, even before it comes in sight; and often a weariness, even of life itself. A frequent weeping for

for imaginary causes, or for no cause at all. Many run out in the streets, and fields, thinking themselves every where imprisoned; and dread being taken up for capital offences, though never guilty of any: and, in others, these distemperatures of the *mind* are evidently joined with others of the *body*; such as a palpitation of the heart, sighing very deeply, painful respiration, strictures of the tonic motions of the parts, tremblings, paleness of the countenance, and extenuation of the body. Sometimes, instead of these restrictions, there are frequent remissions of the same *tonic* motions, whence arise sudden flushings of the face, uncertain heats of the body, and a general lassitude, and loss of strength. In most cases of this kind there is an obstinate *constiveness* of the bowels, and the affections of the mind are increased by terrible watchfulness; and if the persons sleep a little, they are terrified with troublesome dreams all the while: if of sanguine habits, they are continually dreaming of *blood*, and *battles*, and of *fires*; and if of phlegmatic constitutions, of

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water,

water, and drowning. Dreadful apprehensions happen also between sleeping and waking; and they usually awake in agonies, with violent tremblings, and difficulty of respiration. The minds of others are employed about chearful, and often obscene ideas; and sometimes their fancy exalts them to the state of kings and princes.*

* Puer nobilis satrapæ cujusdam in Hispania pedissequus, sanus, ingenii stupidi, et pauci intellectûs, postquam in melancholiam incidisset, tam apte, tam prudenter ad interrogata respondit, tamque acutas, et ingeniosas edidit regulas de administrando regno, cujus ipse se dominum esse imaginabatur, ut prodigij instar videndi, audiendique ejus causa complures confluerent. Ille ipse, cui serviebat, herus rarò a lecto discedebat, Deum rogans, ne mentis ipsi restitueret medicus sanitatem. Et cum ipsum pristinæ sanitati restituisset, male id habuit herus, doluitque ex sapienti, et ingenioso rursum stolidum reddidisse. Imo ipse puer ægre tulit, se pristinam salutem recuperasse. Cum enim in delirio viveret, ejus animus subtilissimis mundi cogitationibus pascebatur, cujus monarchum se esse imaginabatur, omnesque reges quasi vassallos se dominum agnoscere credebatur. Quod licèt falsum esset, nihilominus tantam inde delectationem habebat, ac si reverà talis esset.

Ex Huardi Scrutinij ingenior. cap. 4.

Men

Men of a studious turn, and sedentary life; *hypochondriac* persons, and *hysteric* women; are most subject to this malady.

A spissitude of the blood; a suppression of the *hæmorrhoidal* discharges in men, and the *menstruous* ones in women; a close application to study; a conscientious dread of past crimes, and a continual disappointment in the expectations; besides the unruly passions, of *love, fear, dejection of spirits, despair, and anger*; are the frequent causes of this disorder.

Melancholy, when it depends on immaterial causes, requires *physic for the mind*, rather than for the body; and the frequent conversation with an ingenious friend, of a calm and quiet disposition, will go further towards a cure than a thousand medicines. Persons in this state must be as little thwarted, and contradicted, as possible; and whips and chains are to be avoided, unless in cases of the most extreme necessity. This is also a method equally necessary, in those cases, where habit has confirmed upon the mind that disorder, which at first arose merely from material

causes. But when the disease not only arises, but as yet depends entirely upon material causes, the cure is easy, and is to be performed in the following manner: the *primæ viæ* are to be cleansed by purges, particularly those made of *black bellebore*; and after this the patient is to be blooded in the foot, taking away about six ounces. Then the blood is to be attemperated, by giving, three or four times a day, powders composed of purified *nitre*, and the common absorbents; and after a due use of these, the parts are to be restored to their pristine tone and vigour, by the milder *chalybeates*: the greatest care must also be taken to bring the *hæmorrhoidal* discharges in men, and the *menstrual* ones in women, to a natural, and proper state; and then a sufficient quantity of weak liquors, drank at meals, and a moderate degree of exercise, will bring the patient usually to an absolute state of health.

Hypochondriac melancholy is always more relieved by bleeding, than by any other practice; and, indeed, all attempts are vain, if
this

this be not first done. Purified *nitre* dissolved, and taken, by small quantities, in the patient's drink, will, in time, be found to do great things alone, as to a cure.

Sudor Anglicanus.

THE *English sweat*, or *sweating sickness*, is the name of an epidemical disease, first perceived in England in 1485. It was properly a sort of *plague*, so called because it was attended with an extraordinary kind of *sweat*. It made its return four times in the space of sixty-six years, *viz. in* 1506, 1517, 1528, *and* 1551.

It began with a sweat, which never ended but either with the death of the patient, or his recovery. If he survived twenty-four hours, he was safe. Few people escaped it at first; too much care, and too little, were found equally destructive. The patient was to continue without stirring, either in his bed, or in his cloaths, according to the condition Nature was surprized in; without burthening him either with remedies or with foods; without cloathing either too much or too little; and, if possible, without eating or drinking.

ing. The sweat to be kept up, without either promoting it by any extraordinary heat, or checking it by the least cold. This was what was found by experience ; and which was at length practised with success. The disease was first felt on the twenty-first day of *September*, and in the same day spread itself all over *England* ; and, after a great mortality, it stopped all at once, towards the end of *October*. Its ravages were so great, that in some parts it took off a third part of the people in a very little time. At its return in 1506, it was as general, and as dangerous as before, and again disappeared all at once. In 1528, it was less fatal, insomuch that *Bellay*, *bishop of Bayonne*, then *ambassador in England*, who sweated with the rest, tells us, that of forty thousand souls, seized with it in *London*, only two thousand died. In 1534, it passed over into *Ireland*, where it killed great numbers.

Sir *Thomas More*, in his letter to *Erasmus*, 1517, acquaints him of the death of *Ammonius*, who died of the sweating disease of that year, notwithstanding the hopes he had conceived of preserving himself from it by his

great sobriety : “ In his (quod tibi quoque
 “ dolori esse doleo) *Andrea nostro Ammonio*, in
 “ quo et literæ et omnes boni magnam fecere
 “ jacturam. Is valde sibi videbatur adversus
 “ contagionem victûs moderatione munitus :
 “ qua factum putavit ut quum in nullum pene
 “ inciderit cujus non tota familia laboraverat,
 “ neminem adhuc è suis id malum attigerit ;
 “ id quod mihi et multis præterea jactavit non
 “ admodum multis horis antequam extinctus
 “ est, nam hoc sudore nemo nisi primo die
 “ perit. Ego uxorque ac liberi adhuc intacti,
 “ reliqua familia tota revaluit. Hoc tibi
 “ affirmo, minus periculi in acie quam in
 “ urbe esse.”

“ Among those who have died, is our
 “ friend *Andrew Ammonius*, in whose death
 “ learning and all good men have suffered a
 “ loss. He thought he had sufficiently
 “ guarded against the contagion by sobriety,
 “ and moderation in his diet ; which was
 “ the reason, as he thought, why none of
 “ his domestics had been visited with the
 “ distemper, at the same time that he scarce
 “ met

“ met with any one, whose whole family was
“ not afflicted with it.

“ This he boasted to me and several others
“ not many hours before he died ; for this
“ sweat is not mortal after the first day. I
“ and my wife and children have hitherto
“ escaped, and the rest of my family have
“ recovered from it. This I affirm to you,
“ that there is less danger in a field of battle,
“ than in this city.” This letter was dated
19th August, 1520.

Nicholas Sanders, an English priest, says, that the *English sweating distemper*, which was felt in *London* in the year 1550, had never before been known to the *physicians*. He says that the *river Thames*, which waters the city of *London*, on the 17th of *December*, 1550, in less than nine hours, ebbed and flowed three times contrary to custom. The same year a certain *sweating disease, pestilential, and mortal*, and before that time unknown to *physicians*, spread all over *England*, and killed an infinite number of people, so that in less than seven days there died in the city of *London* alone eight hundred persons ;
several

several *thousands* more being suffocated with the same distemper in other places. It had nevertheless nothing of the nature and quality of the *plague*: but it was a kind of miracle and prodigy, by which the *almighty* and *merciful* God thought fit to warn the *English* of the enormous sin which they had committed against him. It has done no service, however, to a wicked and reprobate *generation*.

Sanaerus de Sclymate Anglican. 1588.

The *sweating sickness* (according to *Speed*, *Heylin*, and *Lord Bacon*) was first known in England in the beginning of the reign of *Henry VIIIth*; and in the reign of *Edward VI. ann. 1551*, it proved very fatal, and swept away great numbers of people. In this reign it broke out first at *Shrewsbury*, *April 15*, from whence it spread by degrees over the whole *kingdom*, till the beginning of *October*. The patient seized with this distemper, either died, or recovered within nine or ten hours at the most: if he slept, as people were generally inclinable, it proved mortal in six hours; and if the patient got cold,

cold, he held out no longer than three. It was observed to seize upon the strongest persons both for youth and constitution; very few young children, or old persons catching it, or dying of it: and, which is still more strange, it looked like a judgment, particularly levelled against the *English*; for no foreigner, though conversant in the most infected places of *England*, suffered by it: neither were the *English* only attacked at home, but pursued by the infection in *other countries*, without the least danger to the natives; for which reason most *Latin* historians call it by the name of *Sudor Anglicus*. The Lord *Bacon*, in his life of *Henry VIIth*, relates, that 'twas found by experience, that this disease was rather a surprize of Nature than too strong for remedy, if applications were seasonably made: for “if the patient,” to use his own words, “were kept in an
“equal temper, both for cloaths, fire, and
“drink, moderately warm, with temperate
“cordials, whereby Nature’s work was nei-
“ther irritated by heat, nor turned back by
“cold, he could only recover.” This dis-
ease,

ease, says the *historian*, was a pestilent fever, but it seems not seated in the veins or humours, there appearing no *carbuncle*, nor *purple* or *livid spots*, nor any thing of the like nature; which was an argument, says he, the mass of blood was not infected.

The *type* of this malady, as it is briefly and methodically described by *Sennertus*, consonant to our own writers, I shall here insert. Those who were seized with it, were taken with an excessive languor, and were dispirited to the last degree; their strength gone; they complained of the greatest disquietude and anxiety, of a great pain in the head; they had a frequent, quick, and unequal pulse, great palpitation of the heart; but, what was most remarkable, they were overwhelmed with vast profuse sweats, which ended not until the disease itself terminated, which was in twenty-four hours. Afterwards, when the nature of the distemper was better known, and they made use of *sudorifics*, and fortified themselves with *cordials*, fewer of them died.

Polydore Virgil observes, that, after a great number of experiments, and observations
made

made on the methods, and things, advantageous and hurtful in the distemper, they at last hit upon the following method: that, if any one was taken in the day-time with this sweating malady, he must immediately go to bed with his cloaths all on about him; if he was seized in the night, there he must lie, and not stir from the place until twenty-four hours were expired: they were not to be covered with so many cloaths as would force them into a violent sweat, but only with as many as were sufficient to promote and carry on a moderate *spontaneous sweat*: they were to eat nothing in the time, if they could fast so long; what they drank should be very warm, and not exceeding in quantity what was customary, enough only to quench thirst: whilst they were prosecuting this method of cure, they were to be under a strict obligation not to put so much as a hand or foot out of bed to cool it, for that was as much as their lives were worth. Some tell us, that for twenty-four hours they were not suffered to sleep. Some that recovered out of this *pestilential* sweating, afterwards, when they had remained well for
some

some time, *relapsed into it a second time*, nay, and sometimes a *third time*.

Dr. *Freind's* History of Physick gives an accurate information of this malady, from the great and learned *Caius*, our own countryman : that it began at first, in 1483, and returned five times, and always in the summer : first in 1485 ; then in 1506 ; afterwards in 1517 ; when it was so violent that it killed in the space of three hours : so that many of the nobility died, and of the vulgar sort, in several towns, half often perished. It appeared the fourth time in 1528, and proved mortal then in the space of six hours : many of the courtiers died of it, and *Henry the Eighth* himself was in danger. In 1529, and only then, it infested the *Netherlands* and *Germany*, where it did much mischief, and destroyed many, and particularly was the occasion of interrupting a conference at *Marpurgh* between *Luther* and *Zuinglius* about the *Eucharist*. The last return of it with us, was in 1551 : in *Westminster* it carried off 120 in a day ; and the two sons of *Charles Brandon*, both *Dukes of Suffolk*, died of it. At *Shrewsbury* particularly,

particularly, where our author *Caius* resided, it broke out in a very furious manner. The description he gives of it is terrible, like the *plague* at *Athens*. He very properly calls it a pestilent contagious fever, of one natural day : the sweat itself he reckons only as a symptom or *crisis* of this fever. The manner of its seizure was thus : first it affected some particular part, attended with an inward heat and burning, unquenchable thirst, restlessness, sickness at stomach and heart (though seldom vomiting), head-ach, delirium, then faintness, and excessive drowsiness ; the pulse quick and vehement, and the breath short and labouring. *Children*, poor, and old people, less subject to it : of others, scarce any escaped the attack, and most died. In that town, where it lasted seven months, perished near a *thousand*. Even by travelling into *France*, or *Flanders*, they did not escape : and, what is stranger, even the *Scotch* were free, and abroad the *English* only affected, and foreigners not affected in *England*. None recovered under twenty-four hours. At first the Physicians were much puzzled how to treat it :

it: the only cure was to carry on the sweat, which was necessary, for a long time; for if stopt, it was dangerous, or fatal. The way therefore was to be patient, and lie still, and not to take cold. If Nature was not strong enough to do it, art should assist her in promoting the sweat, by *cloaths, medicines, wine, &c.* The violence of it over, in 15 hours; but no security, till 24 were passed. In some there was a necessity to repeat the sweating; in strong constitutions, twelve times. Great danger to remove out of bed: some who had not sweated enough, fell into very ill fevers. No flesh in all the time, nor drink for the first five hours: for in the seventh, the distemper increases; about the ninth, *delirium*. Sleep to be avoided by all means. It appeared by experience, as the *Lord Bacon* observes, that this disease was rather a surprize of Nature, than obstinate to remedies, if it were in time well treated: for when proper care was taken, the patient generally recovered.

Syncope.

SYNCOPE is a deep and sudden *swooning*, wherein the patient continues for a while, without any sensible heat, motion, sense, or respiration; and is seized with a cold sweat, over the whole body; and all the parts turn pale, and cold, as if actually dead.

This distemper may be likely to happen from various causes; as too great an exhaustion of the *spirits*, from long fasting, excessive evacuation, violent exercise, bathing too long at a time, &c:—from the irregular motion of the *animal spirits*, preventing their due influx into the parts; as sometimes happens from fear, anger, or other violent passions:---from immoderate *hæmorrhages*:---from an ill constitution of the blood, as in *cacochymias*; or in persons that have taken something that

A a

either

either dissolves, or coagulates the blood: and from secret diseases, as *abscesses, polypuses of the heart, worms, &c.*

In very numerous crowded assemblies, people sometimes fall into *syncope*s, merely through the hot, thick, impure air they breathe. Some women also are liable to them upon the smell of *musk, civet, &c.*

For *syncope*s many give *volatile spirits*, and *aromatics*. *Heurnius* recommends *treacle-water*, and *cinnamon-water*; and *Etmuller*, the *volatile salt of vipers*, *spirit of bartshorn*, *oil of amber*, and sometimes *bleeding*.

Musk, saffron, and *cardiac medicines*, have been usually blended together in the cure of this malady.

The ancients prescribed *cordials*; and supposed that those sort of remedies exerted themselves immediately, in comforting, and strengthening the heart: but modern physicians rather suppose them to produce their effect, by putting the blood into a gentle fermentation, whereby the springs, before decayed, are repaired, and invigorated; and the
tone,

tone, and elasticity of the fibres of the vessels restored ; the consequence of which is, a more easy, and brisk circulation.

Though the *ascititious* vigour of *cordials*, as depending only upon the mere blast of so fleeting and fugitive a thing as *spirit of wine*, and without frequent renewals, is found to be but of short duration ; yet it often happens, that, in great languor, and depression of spirits, by imbuing the stomach with their sweetly pleasant taste, and flavour, they so revive and recreate both body and mind, to a pitch of inspiration, as it were, to perform, in a wonderful manner, all the vital functions afresh, which were but just before spasmodically exploded, overpressed with heterogeneous combinations, and overwhelmed with *languor, tremor, horror, &c.* that they are recommended, and found to be of the greatest use, and benefit, in some of the most distressful maladies that human Nature is subject to.

Dr. *Boerhaave's* method of recovering persons from fainting fits, and preventing their

falling into the like again, is by the use of warm *vinegar*; by applying a rag dipped therein, to the mouth and nostrils. This he prefers to the scent of *spirit of hartshorn*, *sal ammoniac*, &c. and says, that it immediately raises people from languor, and *apoplexy*; and that it seldom fails in the *syncope*, or even in convulsive or *hysterical fits*.

He says, moreover, that he has likewise had experience of the same remedy, in *lethargic* cases, proceeding from taking too large doses of *opium*.

Lipothymia is the name of a disease usually confounded with the *syncope*, but really different from it in many particulars.

The *lipothymia* is a very considerable abolition of the vital and animal faculties, at least to appearance: and the *syncope* is a plenary or total abolition of them: it is easy to see, however, that these are only two different stages of the same distemperature. The *lipothymia* is sometimes an *idiopathic*, sometimes a *symptomatic* disease: the *syncope* is *idiopathic*, and attacks persons in health, as well as those
that

that are diseased. The *syncope* differs from death, only in degree: and the body being flaccid in this, and growing rigid under the last convulsions in death, is the only distinction of them in extreme cases.

A a 3

Vertigo.

Vertigo.

VERTIGO is an indisposition of the brain, wherein the patient sees the objects about him as if they turned round, and fancies he turns round himself; though he is all the while at rest.

Physicians distinguish three kinds, or rather three degrees of vertigoes.

The first, called a simple *vertigo*, is when the body, and external objects, appear to turn round, without any great dimness of sight.

The second, called *scotomia*, or *vertigo tenebrosa*, is when the eyes are also darkened, and, as it were, covered with a mist.

The third is the *vertigo caduca*, wherein the patient actually falls down. But this seems scarce to differ from an *epilepsy*.

Sometimes the *vertigo* is seated in the forepart of the head, and sometimes in the hindpart: the latter is the most dangerous.

Bellini accounts for the *vertigo*, from a preternatural

natural motion of the *retina* : for it is evident, an object will seem to move circularly, if the images thereof, painted on the *retina*, fall successively on different parts of the *retina*. This they may do either by the objects moving while the eye is at rest, or from the eye moving while the object rests ; or lastly, the object and eye being both at rest, and the rays falling on the same place, by the *optic nerve's* being alone in motion : for, since a right, and an oblique incident, do not excite the same tremors in the *nerves*, and the same species of motion, if the *optic nerve* only be moved, and the object be at rest ; it will appear to shift its situation, by the change of the place in which it was represented.

External causes of *vertigoes*, are, a continual turning round of the body, drunkenness, too long fasting, immoderate exercise, surprize, voracity, *much use of pulse, onions, leeks, radishes, cabbage, mustard, &c.* and, in general, whatever may press, distend, or contract the arteries.

The first step in the cure is bleeding in the *jugular*, or cupping, especially if there is a

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pletbora :

plethora : and then, in case of *nausea*, loss of appetite, or rather tokens of the stomach being affected, an *emetic* is to be given : *cathartics* are to be made use of occasionally, and *aromatics*, *cinnab. antimon. rad. pæon. flor. lilior. conval. salv. rosmarin. &c.* *Stercus pavonis* is said to be a *specific* : *cinnab. nativ. sal. volat. et succin. &c.* are recommended.

Dr. Glisson, physick-professor at *Cambridge*, being afflicted with a severe *vertigo* for three weeks, all other remedies proving ineffectual, applied, to the crown of his head, an em-plaster, *ex florib. sulphuris cum alb. ovor.* by which he was cured.

Hydro-

Hydrophobia.

THE history of this horrible disease, which is the consequence of the bite of a *mad dog*, has been represented by *Cælius Aurelianus*, *Etmuller*, *Lifter*, *Mead*, &c. to be attended with this surprizing circumstance: that its effects have, most frequently, not discovered themselves, till after the cause had been forgotten; the wound closing, and healing, like any slight, common wound. The first *symptom* observed, is a wandering pain throughout the whole body, but chiefly about the wounded part; the patient grows anxious, and melancholy, and very prone to anger; complaining of every thing, as the ambient *air*, the heaviness of the bed-cloaths, &c. He vomits; his pulse intermits; and somewhat of a tremor is observed, with convulsions of the nerves and tendons; along with these, he feels an inward heat and thirst; at last, the great symptom appears, which denominates

denominates the disease, viz. the *aquæ pavor*, or dread of water; so that he cannot bear the sight of any liquid, without the utmost consternation; much less can he swallow the smallest drop.

With these, there are other concomitant symptoms;—*he foams at the mouth, his eyes stare, he cannot swallow his spittle without pain, and has a continual priapism. Some bark, and snarl like dogs, and actually fancy themselves transformed into those creatures; and, in the height of their madness, are ready to fly upon, and tear to pieces the by-standers.*

Palmarius observes, that the *hydrophobous* patient cannot bear to look in a glass, or any transparent body: and adds, that he never recovers, unless he knows himself in a glass; this being a sign that the poison has not laid hold of the *vital parts*.

Dr. *Mead*, from several histories of remarkable cases, concludes, that it is the effect of a particular kind of inflammation of the blood, accompanied with so great a tension, and dryness of the nervous membranes, and such an elasticity, and force of the fluid with which they

they are filled, that the most common representations are made to the mind with too great effect; so that the usual impressions on the organs cannot be suffered. Hence that timorousness, unaccountable anxiety, and disquietude, which are always the fore-runners of the dread of liquids; as also, the pain often felt in making water; and the strange averfions, sometimes found in patients, at the sight of any thing white: the *retina* being hurt, and grieved by the lively impressions that are made thereon. Nor is it hard to conceive, that, when the *saliva* is hot, and the throat inflamed, and dry, the swallowing of drink should cause such an intolerable agony.

M. *Tauvry*, from a nice dissection, and examen of the parts, of a person who died of this distemper, conjectures, that the *saliva*, and *bile*, are the fluids first infected; and that the patient vomiting a mixture thereof, the throat becomes *excoriated* thereby: and hence that horror for all foods, and particularly for *fluids*, in regard these dissolve those grievous salts contained in the *saliva* and *bile*. He adds, that the nature of the poison is such,

as

as dissolves the balsamic, and nutritious part of the blood, whence the veins are dried up, so as not easily to admit any blood from the arteries ; and the arterial blood, by this means, sustaining the action, and impression of its vessels, for so long a time, is still further dissolved, attenuated, and *spiritualized*, and thus sent, in too great quantity, and with too great rapidity, to the *brain* ; whence those convulsions, distractions, &c.

Many are the boasted specifics, for the cure of this dreadful malady. Dr. *Mead*, after taking away nine or ten ounces of blood, recommends the following powder ; viz. *lichen cinereus terrestris* half an ounce, and two drams of black pepper mixt, for four doses : one of which is to be taken for four mornings fasting, in half a pint of warm milk. After these four doses are taken, the patient is to go into the cold bath, or a cold spring or river, every morning fasting, for a month ; and afterwards three times a week for a fortnight longer. He must be dipt all over ; but not stay in, with his head above water, more than half a minute, provided the water be very

very cold. But the preference is now given to *mercury*.

Immediately after the bite, if it can be safely effected, the surrounding part should be cut away; and the wound be burnt with a *hot iron*: but if these means are not complied with, a *caustic* should be applied to the part, the eschar cut through, and a discharge promoted, and supported by dressing it with *præcipitate* for some weeks; and fomenting daily with *vinegar* and *salt*, or embrocating with *sweet oil*.

If these methods are not put in practice, let the patient bitten be well washed with *salt and water*; and into the lips, and surface round about the wounded part, let one or two drams of *mercurial unguent*, made with equal parts of lard and mercury, be well rubbed; and let this quantity be repeated daily, till the mouth becomes sore, and a spitting is excited; and then to be left off. This is *De Sault's* method.

Dr. *James* recommends the unction to be used twice a day; and if it can be done without salivating, so much the better. He orders
also

also the following powder, viz. *turpeth. miner.* and *camphor*, equal parts; from three grains to eight, in a little *conserve* of *hips*; to be given every other night for three or four times. And, if a *salivation* ensues, then the use of the medicine is to be deferred, till that ceases; and then to be reassumed. But, if no *salivation* happens, in two or three days, after taking the last dose of the powder, the patient is to bathe in cold water, over head, every day, till the day before the next *new* or *full moon*, when he is again to take the *turpeth powder*, and repeat it every other night, for three times, as before; and, after the third dose, bathe again as usual. This method is to be repeated, for three, or four succeeding periods of the moon.

There are others who depend on the famous East India remedy, as a specific: viz. twenty-four grains of native, and the same quantity of factitious cinnabar, joined with sixteen grains of musk, taken immediately after the bite, and repeated night and morning for three days.

When the symptoms of infection actually invade,

invade, warm bathing, musk, and opium, are principally relied on by some: thus, fifteen or twenty grains of musk may be given every six hours, and one or two grains of opium every three hours, immediately, by mouth or clyster, to procure ease, and abatement of the spasms.

When the patient is plethoric, or attended with fever, large bleedings, with nitre, and clysters become necessary: but, above all things, the patient's mind should be calmed with certain assurances of doing well.

Clyisma refrigerans, antiphlogisticum, in rabie caninâ. Boerhaavij.

℞ Nitr. ʒij. Acet. Sambuc. Mel. Rosat. an. ʒj.
Aq. Hord. ʒx. M. f. clyisma.

Injiciatur bis vel ter in die.

It is remarked in *Persia*, that those people who are used to eat *opium*, live to very great ages; and they have a conceived opinion, also, that, by means thereof, they have a secure protection against injuries from all kinds of *venomous animals*. And may it not, therefore, be suspected, that it would likewise

wife have a specific virtue in the cure of the *hydrophobia*? for this dread of water does not happen till the latter end of the disease, three or four days before death; that is, not till the preternatural fermentation of the blood is come to its height: and as in the *dog*, so in the *patient*, a great quantity of fermentative particles are thrown off upon the glands of the mouth and stomach, as appears by his foaming at the mouth, &c.

This fear is not from a sight of, or any imaginary appearance in the water; for, if the vessel be close shut, and the patient bid to suck through a quill, as soon as he has tasted, he falls into anguish, and convulsions. It is, therefore, highly probable, if not certain, that this surprising symptom proceeds from the intolerable pain, which any liquor, at this time taken, induces, partly by hurting the inflamed membranes of the fauces in deglutition, partly by fermenting with these active particles, discharged by the blood upon the stomachic glands, and thus twitching and irritating the nervous membranes; the memory of which grievous sense, after it is once felt,
is

is so terrible, that the affected person chuses any thing rather than to undergo it a second time.

The effects of this irritation are manifest in the convulsions of the stomach, and frequent *singultus*, with which the patient is continually oppressed. And, indeed, Dr. *Lister's* patient told him, that the very swallowing his own spittle put him to such torture in his stomach, that death itself was not so terrible as the inexpressible agony. What remedy, therefore, can be found so likely to prevent the corrosive ferment, or even allay its *stimulus*, as *opium*, to ease pain, promote perspiration, cheer the spirits, and procure sleep.

Nyctalopia.

NYCTALOPIA, or *Nyctalops*, a disease which prevents the seeing by day, not by night; or an indisposition wherein a person sees better by night than by day.

The *nyctalopia* is supposed to be owing to the spirits being too much dissipated in the day, but collected by night.

Boerhaave says, the *nyctalopia* consists in this, that the *uvea* is immoveable, and at the same time very open.

Nyctalopia is also used by some for a disease of the eyes, which prevents their seeing, when the *sun* is set, and the light begins a little to diminish.

In which sense it amounts to the same with *nocturna cæcitas*.

In the general, any disease which prevents the seeing at any particular time, when others see, is called *nyctalopia*.

In the *Philosophical Transactions* we have an
instance

instance of a *nyctalopia*, or *nocturna cæcitas*, in a youth of twenty years of age ; who had been affected with it as long as he could remember. Dr. *Parham* assures us, he had a good sight all day, and distinguished objects at all distances as well as any body ; but when *twilight* once came, he was quite blind, and saw nothing at all ; nor could make scarce any use of *fire*, *candle*, or *glasses* : yet his eyes, upon examination, shewed nothing at all amiss ; nor had he any *vertigo*, or other disease of the head. The cloudiness, as he himself told the *Doctor*, used to come gradually on him like a mist, as day-light declined. He always saw alike in all aspects of the *moon*, felt no pain by *fire* or *candle* light, and was the same in summer as winter. Dr. *Briggs* accounts for the case thus : as vapours are raised in great quantities during the day-time, which being condensed by the coldness of the evening, fall again, and render the *air*, near the earth, the thicker ; so, perhaps, the humours in the eyes of this youth may be affected ; and, in the evening, rendered grosser, and more turbid :—as we see in

urines, which frequently grow clear, or turbid, as heat or cold is applied to them. But such thickness or spissitude of the humours, the rays being either reflected, or too much refracted, do not reach the *retina* ; or at least strike it too feebly.

The *Greck Physicians* are divided in their opinions concerning this uncommon disease. *Hippocrates* expressly says, We call those *nyctalopes*, who see by night. On the contrary, *Paulus Aegineta*, and *Actuarius*, are as explicit in asserting, that they have their sight perfect in the day-time, but are blind by night. *Aëtius* is of the same mind ; though he is thought to favour the contrary opinion, when he says, They call those *nyctalopes* who see better by night than in the day, and if the *moon* shines they are blind.

The author of the *Isagoge* embraces both opinions, when he says, that they, who in the day-time see more obscurely, at the setting of the *sun* more clearly, but when it is night much better ; or, on the contrary, by day see a little, but in the evening, or at night, they are blind ; are called *nyctalopes*, all alike.

alike. *Galen* explains the word by a *night blindness*.

The *Latins* are in like manner divided in their sentiments of the disease. *Pliny* says, they see by day ; but at night, or in the evening, they become blind. *Nonius*, that they do not see by candle-light. *Varro*, that they cannot see in the evening. *Festus*, that they see better at night, than by day. *Celsus* mentions the disease under the name of *imbecillitas oculorum* ; and tells us, that the patients by day see very well, but at night they are blind.

May not these two descriptions of the *nyctalopia*, so diametrically opposite to each other, be reconciled by fixing the disease to the class of intermittents ? The difference then will only consist in the different times of the approach of the disease : that of *Hippocrates* came on in the morning, that of *Ægineta* in the evening ; both were expressly *periodical*, and the distance of time between the *paroxysms*, in both, was, respectively, the same ; a whole day, or a whole night : and

the various shapes, in which intermittents appear, will favour very much this opinion.

This extraordinary case, indeed, seems to stand alone in the annals of *medicine*; but, the *author* observes, we must be satisfied with a single experiment, till time shall produce other cases, which may determine for, or against it.

Νυκταλωπίας natura et causa.

Si Uvea inflammatur oritur Ophthalmia maxime dolens, brevi periculofissima visui; si suppuratur, perditur acies et visus; si immobilis fit, simulque contracta oritur ήμεραλωπία, quæ et contingit, ubi cataracta minor, ad margines tenuior, in medio spissior, adest; si autem immobilis, et simul valde aperta, tum νυκταλωπία oriri videtur.

Boerb. Instit. Med. 841.

Qui nocturna cæcitudine laborabant (nyctalopes dicuntur) plurimam urinam reddebant, postea paulum quiddam emittebant.

Hipp. S. vii. p. 1138.

Furor

Furor Uterinus.

THIS is a species of *madness* peculiar to women, owing to a too great abundance of the humours of the part, and a preternatural heat and pungency ; exciting them to a vehement and uncontrollable desire of venery, and rendering them insatiate therewith.

A complication of *hysterical symptoms* generally attends this malady : and during the *paroxysm*, from an irregular motion of the *spirits*, the patient on a sudden bursts out into laughter, which is succeeded by a fit of tears.

It is cured by bleeding, and purges with *calomel* and *camphor* : injections of *oxycrate*, *saccharum Saturni*, &c. with *opiates* occasionally, a cooling diet, and frequent use of the *cold bath*.

The *prophylactic* cure for this strong and violent passion, if it can be put in practice by lawful exercises, is, by all means, recommended, to prevent *relapses*.

B b 4.

Gonorrhæa.

Gonorrhœa.

THIS disease is local, and is to be treated, at first, as an inflammation, by *bleedings*, *laxative purges*, as *manna*, and *salts*, &c. soft, cooling *ptisans*, and *emulsions* with *nitre*, and gum arabic: these should be drank of liberally, in order to soften and dilute the salts of the *urine*, that they may not irritate the inflamed parts.

Fomenting, and frequently washing the parts, with bran and water, to which a little *vinegar* may be added, is necessary, both for cleanliness, and utility; and to lubricate, and relax the inflamed parts, and consequently to allay the heat and inflammation, a spoonful of any soft *oil* should be thrown up the *urethra*, three or four times a day.

As soon as the inflammation, and pain, are abated, by thus blunting, and sheathing the acrimonious particles; which, if the patient lives abstemiously, they generally effect
in

in eight or ten days ; and when the matter discharged, assumes a milder, and less irritating quality ; gentle astringent *injections* may be used, to brace up the relaxed vessels, and moderate, or check the discharge.

Various are the forms for this intention : perhaps a simple solution of *white vitriol* in fair water, is equal to most ; the proportion may be ten grains to two ounces ; but this must be regulated by the sensations, and effects. Some prepare their *injections of mercury*, as a dram of *calomel*, rubbed down with double the quantity of *gum arabic*, and dissolved in about half a pint of *water*, to which they add occasionally, ten, or fifteen grains of *white vitriol*, while some mix the *vitriol*, or a small quantity of *verdigrease* with the *oil*.

To every six ounces of water, others add twenty, or thirty drops of *Van Swieten's sublimate solution*, or a dram or two of *Ward's white drop* ; but the quantity must be regulated by the effects, and irritations produced : these restraining, and oily *injections*, are, by some, thrown up alternately : it may be necessary, however, to observe, that, whenever
the

the *symptoms* and pain grow worse; in consequence of the restraining *injections*, they must be discontinued; and the cooling plan must be again pursued, with *oil*, till these new complaints are removed, or carried off.

By this method, simple *claps* may readily be removed without giving a grain of *mercury* internally; and, if the symptoms should be troublesome, they may be easily palliated: the *phymosis*, and *paraphymosis*, may in general be relieved by emollient *fomentations*, and *cataplasms*, and throwing up *oil* between the *glans* and *prepuce*: but, if there should be concealed *chancres*, the *prepuce* must be divided; and if the stricture be great in the *paraphymosis*, the folds must be divided by the knife, to prevent mortification.

Buboes that are hard, and not yet inflamed, and in a state of suppuration, may be dispersed by rubbing in daily the *mercurial ointment*, with gentle *physic* intermediately: but when matter is absolutely forming, the best way is to promote the suppuration by warm *plaisters*; and when it is formed, to evacuate it by *caustic*.

Priapisms

Priapisms and *chordee* are to be relieved by *bleedings*, *opiates*, and *mercurial frictions*, with cooling regimen.

The *hernia humoralis*, or swelled *testicle*, should be treated as inflammatory, by *bleeding*, *lenient purges*, with *emollient fomentations* and *poultices*; and the remaining hardness may be dissolved by rubbing it with *mercurial ointment*.

Chancres should be *fumigated* with *cinnabar*, and dressed with *præcipitate* mixed up with soft *cerate*: *mercurial pills* should be taken every night, prepared with five grains of *argentum vivum*: or half a dram of *mercurial ointment* should be rubbed daily into the *groins*, and *thighs*; but so as to avoid *salivation*, by interposing, now and then, a gentle purge.

Venereal warts, and excrescences, are to be removed by rubbing with a bit of *lunar caustic*, or washing them with a solution of *lapis infernalis*, viz. a dram or two in a pint of *lime water*: when they are pendulous, the shortest way is to snip them off, and rub them with the *lunar caustic*, or to fumigate them with *cinnabar*.

In

In the second infection, or when the blood is tainted with the *venereal* poison ; *mercury*, and its preparations, are the antidote, and are principally to be depended on ; and, in general, may be so directed, as to answer the end without *salivation*, by a discreet use of the *sublimate* solution ; the *pil. cæruleæ* ; *mercurius calcinatus* ; *mercurial frictions* ; and decoctions of *sarsaparilla*.

But as no preparation of *mercury* will, in all cases, and constitutions, be equally effectual, it must be left to the prudence of the *surgeon*, to direct accordingly ; taking care that the blood be saturated with the *mercury* in proportion to the degree of *infection*, and the inveterateness of *symptoms*.

It may be necessary to observe, that, when a *chancre* appears, though no bigger than a pin's head, a *mercurial* course should be directed ; as we may conclude the *venereal virus* has been taken into the habit, and may hereafter be productive of a *pox*, if the seeds are not now eradicated. For the removal of *gleets*, the *vitriolic injections* will be greatly assisted by passing up *bougies*, in order to press down the
fun-

fungosities in the *urethra*, till the relaxed parts recover their tone and elasticity.

We shall conclude, with another remark, in regard to the removal of the *ardor urinæ*, in *claps*, by giving freely of *nitre*; which is best effected by such soft mucilaginous bodies, as *gum arabic*, *linseed* infusion, *marshmallow decoctions*, and *barley water*; and indeed with plenty of other aqueous vehicles, which will dilute the *salts* in the *urine*, and render them insipid. Now, as *nitre* adds to these salts, and a solution of it applied to any excoriated part, gives considerable pain, which simple water does not, we may reasonably conclude that this *salt* will rather augment, than diminish the pain, in evacuating it. And, indeed, this has been confirmed in practice, by its increasing the natural *stimulus* of the *urine* in *claps*.

Dr. *Boerhaave* observes, that the seat, or sole *nidus* of the *venereal venom*, as of *ulcers*, and *fistulas*, is the *fat*, *oil*, or *marrow*; that the depredation of the *poison* is confined to the *panniculus adiposus*, and *membrana cellulosa*; that the flesh, bones, &c. are not destroyed

stroyed by the *venereal harpy*, otherwise than as they depend upon the said *membranes*, or are corrupted, instead of being defended, by the unctuous humour, grown *corrosive* from a most virulent taint of this *poison* : and these considerations serve to furnish a clue for tracing the progress of the *venom* through its intricate *meanders*.

Further, he mechanically explains the operation of *mercury* in curing this *malady*, and sagaciously observing the extent of its efficacy, in these cases, not to exceed the road of circulation, indicates the reason, why a *salivation* will, neither, answer, when the *diploe*, or the *marrow* of the bones, is infected, nor in a *gonorrhœa* ; much less, after a dissolution of the *blood*, by the sweating method of *guaiacum*. If his regimen for extirpating this disease has been thought too severe, to proceed from too scrupulous apprehensions about it, it were an error, on the right side, at least ; whereas, the too common practice, he condemns, of applying exsiccatives to the *ulcuscula cancri dicta*, before the *virulence* is enervated, or eliminated, by proper internals,
and

and fomentations, has been sooner or later attended with disastrous consequences. By our author's caution, the cure, if tedious, is sure, and permanent; by the contrary management, the repelled *virus* diffuses itself through the whole habit, and, after an imaginary cure, the distemper shews itself in a worse shape, and is not to be eradicated in our climate, under a month's *ptyalism*.

Hypo-

Hypochondriac and Hysterical Affections.

IT is observable, that persons, subject to *hypochondriac* disorders, very rarely fall in-to continued, epidemic, or contagious *fevers*; and even escape the *plague*, and remain free from many other distempers.

The *hypochondriac* malady is obstinate in its nature, and but few of a sedentary life are totally free from it. Its symptoms are very numerous: the most usual are, a pain in the stomach, flatulency, vomiting, distension of the *hypochondria*, noises and rumblings in the lower belly, wandering pains, a constriction of the breast, difficulty of breathing, palpitation of the heart, faintings, *vigiliæ*, inquietudes, swimming of the head, fear, suspicions, melancholy, delirium, &c. In effect, it is a very vague, indeterminate sort of disorder.

The

The seat of this disease is commonly supposed to be in the *animal spirits*, and the *nervous system*; and its causes assigned, to be from crudities, and indigestions; vehement motions of the *body*, perturbations of the *mind*, as grief, anger, fear, &c.

For the cure of this distemper, the principal indication is to purify and strengthen the *blood*, after proper evacuations, by *chalybeates*, strengtheners, and *volatile spirits*; the *bark*, a *milk-diet*, riding on horse-back, &c. But, above all, frequent, gentle, *anodyne* purges, are excellent.

The intention of this class of medicines, is to remove obstructions of the *viscera*, correct depraved *ferments*, repress *spasmodic flatulencies*, restore a languishing appetite, and alleviate pain and tension of the *hypochondria*.

It is no wonder that the cure of *hypochondriac* affections is oftentimes found to be extremely difficult, since they have their *minera* in the glands of the *ventricle*, and *viscera*; which, by a corrupted taint of vicious ferments, deprave *chylification*, and impoverish

the *blood*; and, by that means, render the disease too great for the power of *medicine*.

Hysterics attending women, are, in many respects, of the same nature with the *hypochondriac* passion in men: but, as they are usually of more tender constitutions than men, it afflicts them more violently, and often brings on a terrible sensation of stricture of the breast, and a sort of *suffocation*, violent *anxieties*, *nauseas*, and other painful, and often dangerous, complaints, which are unknown to men in their *hypochondriac* disorders.

This distemper seems to arise from congestions of blood in the *viscera* of the *abdomen*, which should find passage by the *uterine*, or *hæmorrhoidal veins*, but is impeded. And as this is also the cause of the *hypochondriac* affections in men, it is no wonder that the generality of *symptoms* are the same in both, and the method of cure must be nearly the same. It is to be observed, however, that, though obstructions are the common
cause

cause of these diseases in both sexes, yet women are sometimes found afflicted with this, while the menses flow properly, in due quantity, and at their regular periods. In this case, the disorder seems owing to acrid humours in the *primæ viæ*, exciting *spasms* wherever they come.

The ordinary causes of this disorder are violent passions, rage, love, grief, ill-news, sweet smells, &c. As for the popular notion of malignant vapours arising from the *womb*, and being the principal cause of most of the *symptoms* in this distemper, the learned all discard it, and hold men as subject to the disease, as women. The real cause they affirm is in the *animal spirits*, and the *nervous system*; and the affection does not differ from the *hypo-chondriac*.

Some women under this disorder, fancy a rope tied about their necks, ready to strangle them; and others think a piece of something is got into their throats, which they cannot swallow, but which stops their breath: and some will even remain, a good while, as

if really strangled, without any sense or motion.

In the time of the fit, when the sensation of strangulation is violent, and there are convulsive motions, or faintings, the *fetid* and *volatile* medicines serve to recover the patient; such as *spirit of hartshorn*, *oil of amber*, *tincture of castor*, and the *volatile salts* held to the nose, or taken inwardly, as also the burning of *feathers*, *horn*, or *leather*, or any other substance, which has a very disagreeable smell while in the fire: rubbing the hands and feet also are of great service; and some recommend the pulling-off of the hairs singly, and other methods which give pain, to bring the patients to themselves.

The more common symptoms or accidents of this disease, are a swimming of the head, dazzling of the eyes, palpitation of the heart, flatulencies, vomitings, deliriums, and convulsions. But it is not always attended with all these *symptoms*; but sometimes with more, and sometimes with fewer of them, and those more or less violent.

These

These disorders are most effectually allayed by such things as are in a manner the reverse of cordials ; and are, both in smell and taste, very offensive and disagreeable : they seem to answer the end by suffocating, as it were, the spirits, and damping their inordinate sallies, so that such stimulation ceases, and the fibres return to their natural tone and motions : for, as what is grateful to the senses gives an inexpressible emotion to the fine *nervous* filaments, so does what is *fetid* and disagreeable quite destroy that emotion, and deaden it ; and as the former kind consist chiefly in fine subtile *volatile parts*, by which they are fitter to enter the *nerves*, so these are generally of a clammy, viscous contexture, and therefore the fitter to envelope and entangle that subtile *juice*, whereby its motion is much retarded.

Phthisis, or Consumption.

THIS distemper is a preternatural decay of the body, by a gradual wasting of the muscular flesh, for want of nourishment.

The causes of which may be, either from the natural constitution of the body, and the tenderness of the arterial vessels, or from an acrimony of the juices ; any great force upon the lungs, as coughing, hollowing, singing, running, &c. interceptions of usual evacuations, as piles, menses, lochia, bleeding at the nose, and omissions of customary bleeding.

Many are the diagnostic signs of this malady ; as heat in the palms of the hands, redness of the cheeks after eating, extenuation of the solid parts, incurvation of the fingernails, paleness of the face, and a falling-off of the hair, &c.

The symptoms in general, are a dry cough, small fever, and heat ; a propensity to sweat after sleeping ; a panting for breath, upon the
least

least motion ; spitting blood, florid and frothy ; weakness ; and pulse soft, small, and waving.

The hectical phthisis hath its origin in the winter's cold ; and the principal cause of every evil symptom originates from an acrimonious taint in the fluids, which is productive of a cough, hoarseness, and, in process of time, of many other grievous symptoms.

The cure consists in directing the non-naturals, so as to make them contrary to the causes.

Bleeding, either in the arm, or foot, is to be repeated every three or four days, till the inflammatory crust has entirely disappeared ; and cooling, thickening, styptic, softening medicines, mixed, now and then, with gentle balsamics, are to be persisted in for a long time : and the daily exercise of riding on horse-back, if it can be complied with, is strongly recommended.

Alterative medicines are principally to be depended upon, to correct the poisonous acrimony : and a regimen of diet, smooth, soft, and nutritious, consisting of milk and vegetables, the white of new-laid eggs, beat up

with barley water, and a little honey ; snails boiled in milk, viper-broth, asses milk, &c. to dilute the sharp particles, and wash them out of the blood, so that they may be carried off either in the urine, or other excretions.

Both mercury, and antimony, given in small doses, have proved very serviceable in the cure of this distemper ; and Dr. *Huxham's* vinum antimoniale, taken in milk, has been proved to be of great efficacy.

The following remarkable history of the powers of antimony, may not be unacceptable to the reader :

“ A gentleman in the last stage of a consumption, was sent into the country, to try the last remedy, asses milk. He drank it under the direction of an eminent physician, who was surprized to find that it not only purged him (a common incident), but vomited him also. The patient, however, notwithstanding these evacuations weakened him, soon found his breath relieved, his spirits better, and a general amendment in his constitution. The Doctor, therefore, advised

“ advised him to persevere ; and as the milk
 “ grew familiar to his stomach, the vomiting
 “ and purging gradually abated, till it agreed
 “ perfectly well : in fine, the gentleman re-
 “ covered ; and the vomiting power of the
 “ milk was attributed to the afs drinking her
 “ water out of a trough, impregnated with
 “ liver of antimony ; several lumps of which
 “ were discovered in it, and had been occa-
 “ sionally put there for the use of the hounds,
 “ who drank out of the trough.

“ How far the milk of the afs might be
 “ saturated with this powerful medicine, by
 “ the process of Nature, we submit to the
 “ ingenious reader ; but think it no bad hint
 “ for the use of mild antimonials, given as
 “ alteratives, and correctors of the blood and
 “ juices, in this deplorable malady.”

Atrophy.

Atrophy.

THIS distemper is much of the same nature with a phthisis, but takes its origin from infarctions of the glands of the mesentery, pancreas, or liver, and is most common to children; whereas the phthisis is a like distemperature of the lungs, and affects persons nearer the time of growing to man's estate.

The symptoms arising from these causes, are a wasting of the flesh, great weakness, and want of spirits, a general languor of body and mind; internal heat, thirst, &c.

This disease is usually brought upon children by improper nourishment; or from milk, coagulated, by a prevailing acidity, in the stomach, or duodenum; and from worms. And in length of time, either through neglect, or for want of proper management, in the cure of such patients, the rickets, and swellings
about

about the joints, or crookedness and distortions, are the natural consequences.

Gentle abstergents, at first, to cleanse the primæ viæ, with resolvents, and attenuants, have been proved to be proper remedies for the cure of this distemper : for which purpose, calomel and rhubarb taken between whiles, with a decoction of arum and pimpernel roots, the juice of ground-ivy, and the aperient tincture of steel, are accounted excellent medicines. Added to these, a milk-diet, and exercise, have been found beneficial means to restore health.

The mouths of the lacteals may be shut up by a viscid mucus, in which case the chyle passeth by stool, and the person falleth into an atrophy.

Coma.

Coma.

A Violent propensity to sleep, whether sleep ensues or not, is the essential character of this disease.

If sleep do ensue, the disease is called *coma somnolentum*; wherein the patient continues in a profound sleep: and when awaked, immediately relapses, without being able to keep his eyes open.

If he do not sleep, but is continually awaked with frightful dreams, it is called *coma vigil*: in this case also his eyes are shut, and he appears to be asleep.

The cause of the *coma somnolentum* may be any thing that prevents the course of the spirits: as a cold humid temperature of the brain; hot putrid vapours ascending into the head, and stopping the canals of the animal spirits; narcotic vapours, &c.

The *coma vigil* seems to be a medium between a lethargy and phrenzy; and is supposed

posed to arise from the conflict, or jarring mixture of bile and pituita, the one urging to sleep, the other to waking. Hence the patient sleeps either not at all, or, at most, but for a moment ; is uneasy, starts, rises up, and sometimes throws himself on the persons near him ; his eyes continuing all the time fast closed.

The remedies for a coma, are those which occasion great evacuations ; as violent clysters, and vomitives : medicines that purge, dry the brain ; and those which occasion a revulsion of humours ; as vesicatories, cauteries, &c. to which may be added volatile spirits, salts, and most cephalics.

However, the physician ought very exactly to enquire into, and find out the cause of this malady, before he determines how to act : for sometimes the very contrary means ought to be pursued, of that which has succeeded in seemingly the like case.

Carus.

Carus.

THE Carus is a slight apoplexy, but a very heavy, obstinate sleepiness, with a fever; proceeding chiefly from causes which do press upon, or obstruct the brain. The patient has some perception, but momentary; some sensation, but in a small degree.

The carus differs from the coma in this: that, in the latter, he answers when interrogated; but not in the former: from a proper apoplexy, by the momentary sensation, and the freedom of respiration; which is always more obstructed in the apoplexy: from an epilepsy, in that there is no motion, or froth at the mouth, in a carus: from a syncope, by the pulse; which are high, and the face ruddy; whereas, the pulse are low, and the face cadaverous, in the syncope: from an hystERIC suffocation, in that the patient hears, and remembers

bers things ; which he cannot do in the carus.

Galen describes the carus, as a privation of sense and motion, throughout the whole body, the respiration remaining entire ; followed by a profound sleep, and the eyes always closed : but sensation not so absolutely destroyed, but that the patient can feel a puncture with a pain, though he is not thereby awakened, either to open his eyes, or speak.

The carus is described, by modern physicians, as a drowsy disease ; slighter than the apoplexy, but severer than a lethargy ; and frequently degenerating into the former ; occasioned by an obstruction of the course, and diffusion of the animal spirits, from the medulla of the brain, towards the cortex.

The same method of cure, as has been given for the apoplexy, is also recommended for the carus.

The wakeful, and the sleepy coma, and the cataphora, seem to be only slighter sorts of cari.

The

The lethargy also is a slighter sort of apoplexy, from a cold, slow, and watry cause ; and the cure is the same as that of the pituitous apoplexy.

Noctambuli.

Noctambuli.

NOctambuli (or rather Somnambuli) are people who have a habit of walking about in their sleep.

Schenckius, Horstius, Clauderus, and Hildanus, have given us divers unhappy histories of such noctambuli.

This is a very remarkable distemperature of the imagination ; and, in different persons, differs greatly in degree. Those who are but moderately affected with it, only repeat their actions of the day ; and, getting out of bed, go quietly to the places they frequented at other times : but those who are afflicted with it in the most violent degree, go up to dangerous places ; and do things that would terrify them to think of, when awake : these are by some called lunatic night-walkers, because fits are observed to return, with more frequency, and violence, at the changes of the moon.

The disorder seems to consist in this: that the proper organs of muscular motion are at liberty, while the organs destined for sensation are firmly bound up, or in a state of inaction.

To conceive the cause: it is to be observed, that the laws of the union of the soul and body are such, as, that certain ideas follow upon certain motions of the fibres of the brain; and certain motions of those fibres, upon certain ideas. Now, by much thinking on any one thing, the fibres acquire some permanent situation, which gives a freer passage to the spirits, toward a certain part of the body, than ordinary. If, then, the animal spirits become too copious, or too much agitated, or consist of parts too solid; they throw themselves into passages they find the most open, glide into the nerves, and muscles, corresponding to those passages, and there produce the proper motion of those muscles.

Accordingly, the body rises, and walks; though the soul be excluded from thinking on the objects that used to employ it on such occasions.

The bilious, according to Horstius; the melan-

melancholic, according to Salius; and the sanguine persons, according to Libavius; are most subject to these nocturnal vagaries.

The only material cause that can be assigned, in this case, is a plethora, or over-fulness of blood; but this is influenced by an immaterial one, that is, by the fancy; which is busily employed in dreams about particular objects.

The remedies are, all such things as temper the agitation of the spirits, and relax the fibres; as bleeding, and all coolers, either internally, or externally: aperitives, too, have a good effect; but the best remedy, according to some, is cold bathing.

The primæ viæ are first to be cleared of all their foulness, by a strong purge; after this it is proper to bleed in the foot, taking away eight or ten ounces; then powders composed of nitre, cinnabar, and crabs eyes, should be taken three or four times a day, and particular regard should be had to the changes of the moon.

It will be proper to set a vessel of water by the bed-side, without the person's know-

ledge; in such a manner, that he will naturally step into it, in getting out, and be awaked by that means: and if these things fail, a person should be set to watch him, and beat him every time it happens.

The

The Scurvy.

THIS disease is very frequent in the northern countries, particularly in fenny, damp places, and much exposed to the north. It is accompanied with a great variety of symptoms; whence Dr. *Willis* says, it is not any particular disease, but a legion of diseases.

The most usual symptoms are bleedings, coughing, vomiting, difficulty of breathing, looseness, a relaxation of the parts, sweating, a fetid smell of the gums, a falling-out of the teeth, stinking breath, reddish or yellow livid spots, pains of the arms and legs, weariness, faintings, head-ach, &c.

There are some who derive all diseases from the *scurvy*: *Boerhaave* tells us it produces *pleuritic, cholic, nephritic, hepatic pains*; various fevers, as *hot, malignant, and intermitting*; *dysenteries, faintings, anxieties, dropsies, consumptions, convulsions, palsies, fluxes of blood*: in a word, it may be said to contain the seeds

and origin of almost all distempers. A *cachexy*, or ill habit, is much of the same nature with the *scurvy*. It is supposed by physicians, that the immediate cause of the *scurvy* lies in the blood, the fibrous part of which is thick, and the serum too thin and sharp; and that hence arises the great difficulty in the cure, because in the correcting of one part, regard must be had to the other. It is well known how extremely difficult it is to cure an inveterate *scurvy*; how many scorbutic patients have grown worse by an injudicious course of evacuations; how many are even rendered incurable by the treatment of inconsiderate physicians; and how difficult, tedious, and uncertain the cure is, in the hands even of the best, who are obliged to use such variety and change of medicines in the different stages of that malady; which nevertheless may be cured, says the *Bishop of Cloyne*, by the sole, regular, constant, copious use of *tar-water*. In the cure of the *scurvy*, the principal aim is to subdue the *acrimony* of the blood and juices; but as this *acrimony* proceeds from different causes, or even opposite,

posite, as acid and alkaline, what is good in one sort of *scurvy*, proves dangerous, or even mortal, in another. It is well known, that hot anti-scorbutics, where the juices of the body are *alkalescent*, increase the disease; and sour fruits and vegetables produce the like effects in the scurvy caused by acid acrimony. Hence fatal blunders are committed by unwary practitioners, who, not distinguishing the nature of the disease, do frequently aggravate, instead of curing it. The *Bishop* says, if he may trust what trials he has been able to make, this water is good in the several kinds of *scurvy*, whether acid, alkaline, or muriatic; and he believes it the only medicine that cures them all, without doing hurt in any.

In a high degree of *scurvy*, a *mercurial salivation* is looked on by many as the only cure; which, by the vehement shock it gives the whole frame, and the sensible secretion it produces, may be thought to be more adequate to such an effect: but the disorder, occasioned by that violent process, it is to be feared, may never be got over. The imme-

mediate danger, the frequent bad effects, the extreme trouble, and nice care attending such a course, do very deservedly make people afraid of it. And though the sensible secretion therein be so great, yet in a longer tract of time the use of tar-water may produce as great a discharge of scorbutic salts by urine and perspiration; the effect of which last, though not so sensible, may yet be greater than that of salivation; if it be true, that insensible perspiration is considerably more than all the rest of the sensible secretions together.

A very exact diet is held of more effect in the scurvy, than the best medicines; without this it becomes incurable. *Bleeding* does not avail; strong *purgatives* are hurtful: so is *sugar*, and all sugared things: *mercurius dulcis* used internally, so as not to salivate, but only raise a sweating, is found excellent. *Dolæus* undertakes to cure any *scorbutus* in twelve days time by the use of this alone; only the patient is to drink nothing all that time, but a proper decoction, and to abstain from acids and hogs flesh.

The ingenious Dr. *Macbride*, whose experiments

riments on alimentary mixtures are well worth consulting, strongly recommends an infusion of malt for the cure of this distemper at sea, and thinks it bids as fair for the cure as the juice of any recent vegetable. From a variety of experiments, he concludes that the property, common to all fresh vegetables, is, that, when mixed with any animal substance, and placed in the proper degree of heat, they presently run into fermentation, and in the course of it throw off an *elastic vapour*, or *spirit*, of surprizing activity, endowed with a power of restoring sweetness to putrefied animal foods. Hence he concludes, that those vegetable substances, which, though not perfectly recent, are yet capable of fermentation, as common malt, if taken in the way of medicine, would in all probability produce similar effects to those produced by green vegetables: and, indeed, from some cases lately published, this ingenious conjecture of the *Doctor's*, seems to be justified by experiment.

Take a quart of ground malt, and pour on it three quarts of boiling water; stir them
well

well together, and let the mixture stand close covered up, for three or four hours; after which strain off the liquor. It should be brewed in hot weather every day. A quart or more of this infusion is to be drank in the course of twenty-four hours, with some drops of elixir of vitriol, if it should purge.

He proposes also to boil the wort up in a *panada* with biscuit, or some of the dried fruits usually carried to sea, and to make two meals a day of this palatable mess.

The land *scurvy* is often more troublesome than dangerous: the hot species is generally removed by the antiscorbutic juices, and a vegetable diet; the cold, by the warm plants, as horse-radish, burdock, mesereon, &c.

When the blood is thin and acrimonious, the bark and its decoction are often successfully given with elixir of vitriol: and in that troublesome disorder of the face, called *gutta rosacea*, it has sometimes had surprizing success, when properly persevered in.

To remove the red, livid, and dark spots, and those violent indurations which are often observed in an inveterate scurvy, let the patient

tient be well rubbed, two or three times a day, with the following liniment, viz. ℥vj. of Spanish soap, ℥ij. of camphor, and ℥iij. of sal ammoniac, dissolved in a pint of brandy.

But to correct the blood and juices, and rectify the habit, one, or other, of the above remedies, adapted to the particular species of the disorder, and constitution, must be continued for some time.

Cachexy.

Cachexy.

THIS disease takes its origin from a foulness of the stomach, and viscera, creating a vitiated temper and disposition in the nutritious juice, a great debility of the solids, and a stagnation of the fluids; whence a bloating of the fleshy parts, with a paleness and lividness of the complexion, a leucophlegmatia, and anasarca.

It most frequently attacks persons of a phlegmatic habit, and more commonly women than men; as well on account of their softer texture, as of the frequent disorders which the irregularity of menstruation often occasions. A sedentary course of life, unwholesome food, crapulas, immoderate hæmorrhages, and chronic fevers, are the most frequent causes of this distemper.

There is no disease more readily known than this, as none has such obvious and distinctive symptoms. The face, hands, feet,
and

and legs, are always bloated, and swelled beyond their natural dimensions; the natural heat of the body decreases, and there is an evident and actual sensation of cold in the parts. This is attended with an universal languor, and anxiety of mind, and a painful weakness in going up steps, or walking up hill. The appetite is very uncertain, and loathings of food are very frequent; and, after eating, all the symptoms of a bad digestion; as tensions and oppressions of the stomach, and flatulencies. The bowels are in a very uncertain state, sometimes remaining costive for a long while together; and at others, throwing off the food undigested, in the manner of a lientery. The patients have always a great propensity to sleep, but find no refreshment by it. The urine is but small in quantity, sometimes red, and sometimes pale; the pulse languid, and weak; and the blood is pale and thin, and abounds in serosities: difficulty of breathing, heats and flushings at times, and the head always disturbed, and not unfrequently vertiginous, and violently painful; and œdematous

tous tumors appear on the feet when the patient is standing up, but disappear again when he lies down.

The general method of cure must be by correction of the vitiated humours, a reseration of the viscera, and an evacuation of the humours when thus prepared for it; and, finally, a restitution of due tone to the solids.

The patient should be treated at first with resolvents, and digestives, such as the *tartarum vitriolatum*, and absorbents sated with acids, as *crabs eyes* with lemon-juice; and with aperient decoctions of *guaiacum*, *sassafras*, &c. and either during the time, or afterwards, evacuants are to be given. If the improper treatment of a fever has been the occasion of this malady, the mild *alexiphar-mics* are to be given at times; and when an obstruction of the menses is in the case, the time when they are expected is to be carefully regarded, and emmenagogues, and baths for the feet, are to be ordered at those periods. When obstructions of the hæmorrhoidal discharges are the case, then leeches should be applied to the hæmorrhoidal veins :
and

and if the disease has arisen from long-continued hæmorrhages, then analeptics are to be trusted to, with very gentle correctives, for fear of exciting new commotions in the blood; in these cases, bleeding in the arm is sometimes found necessary. But, after all, *Cachectici, quo leniùs tractentur, eò citiùs curentur.*

The Dropsy.

PHYSICIANS mention three species of *Dropsy*: the *leucophlegmatia* or *anasarca*; the *tympanites*; and the *ascites*. This disease, however distinguished, is a preternatural collection of serum in some part of the body, or a too great proportion thereof in the blood: For an excess of serosities is common to them all.

The *ascites*, or *dropsy* of the *abdomen*, is the most usual case, and what we particularly call the dropsy: the signs whereof are tumors, first of the feet and legs, and afterwards of the abdomen, which keep continually growing; and if the belly be struck, or shook, there is heard a quashing of water. Added to these, are other attendant symptoms: viz. a dyspnœa, intense thirst, and a discharge of urine in small quantities; with a heaviness, listlessness, costiveness, a light fever, and an emaciation of the body.

The

The curative indications are two, viz. the evacuation of the water ; and the strengthening of the blood and viscera. The first is effected by strong purgatives, and diuretics ; the second, by exercise, change of air, wine, and other generous liquors ; stomachic, chalybeate, and other corroborating medicines.

When other means fail for evacuating the water, recourse is to be had to the paracentesis, or operation of tapping.

In the *leucophlegmatia* an incision is to be made in the inside of the leg, two fingers breadth above the ankle, as far in as the cellular membrane, and no farther ; in order to serve as a drain for the water, which should run for several days. And during this time let the leg be fomented with a decoction of emollient and warm herbs, with an addition of camphorated spirit of wine ; which method has proved an absolute cure, by draining off an almost incredible quantity of water for many days together. But care must be taken not to over-exhaust the patient's strength ; which is as much affected by this evacuation, as if a large quantity of blood were drawn :

E e

wherefore

wherefore the patient is to be supported by all possible means.

In curing flatulencies of the stomach and bowels, the proper method is to promote the discharge of the vapours by the anus, and to attenuate and carry off by stool the viscid matter which is the occasion of them. To this purpose discutient and evacuating clysters are very serviceable: these should be prepared of camomile, hyssop, juniper-berries, and the carminative seeds, a little quantity of sal gem. crude sal ammoniac, or Epsom salt, in veal-broth. After these, laxative medicines are to be given, with balsamic and carminative ingredients; and then the powders of zedoary, orange peel, and tartarum vitriolatum: and, when necessary, the pilulæ de Styrace at proper intervals. In the mean time much service may also be done by external applications; such as the oils of mint, rue, nutmeg, and the like, with balsam of Peru: and the rubbing the belly with Hungary water is often of immediate relief. By these means the slighter inflations of the stomach and intestines

tines are usually cured with ease, and often beginning tympanies yield to a continuance of them.

The most effective medicines in the cure of a tympany, are mild purges, with oil and opium ; carminatives, and the warm bath.

In an ascites, it is very material to consider what evacuations the patient is capable of bearing : for when he is weak, violent purging is very prejudicial ; and the more the ferosities are drained out of the intestines, the greater quantity of them flows into the belly. When this is the case, we ought to desist from strong purging ; and try to carry off the redundant water by the urinary passages : which is safest done by lenient cathartics, and diuretics, of which squills are the most efficacious.

R Succ. Limon. ʒvj. Sal. Absinth. ʒss. m.
 et adde Aq. Cinnam. simpl. ʒjss. Aq.
 Menth. Piper. Spt. ʒss. Acet. scillit.
 Syr. Cost. Aurant. an. ʒj. vel ʒjss.
 M. f. haustus, bis in die sumendus.

An infusion of broom-ashes, is also beneficially ordered by physicians, upon account of its diuretic quality ; and if it be mixed with a little wine, it will often make a good common drink for the patient.

Dr. *Mead* hath recorded a very remarkable case of a *lady*, who at fifty years of age had a hard swelling on one side of the *abdomen*, which without doubt was one of the ovaries grown to a very large size ; and its lymphatics bursting spewed out their contents, and gradually formed an ascites. Purgatives, and diuretics of all sorts, were tried in vain. She was tapped three times, and soon filled up again. It happened at length, that a poor country-woman came to see her, who, observing her in great pain from the tension of her belly, easily persuaded her to take, every night and morning, a spoonful of whole mustard seed, and drink on it half a pint of decoction of green broom-tops. After three days taking this bitter potion in this manner, she found herself vastly relieved ; and her thirst, which had been very troublesome, was entirely appeased. This medicine some-
times

times gave her stools for two or three days successively, and she made five or six pints of water, at least, every day. She continued this course for twelve months, and was cured without any return of the disease.

The same learned author takes notice, that narcotics are sometimes found so useful in this disease, that they may be placed among diuretics ; for, in case of great pain, by relaxing the fibres of the renal ducts, which are always constricted in pain, they promote a discharge of urine, as will appear by the following remarkable case :

A robust, sober, temperate man, of about forty years of age, was afflicted with an ascites and tympany together. The disease was owing to a violent blow in the right hypochondrium. The swelling of his belly daily increased, with very severe pain, great thirst, and thick high-coloured urine rendered in small quantity. The most powerful diuretics, as Venice soap, lixivial salts, balsam of Gilead, nitre, and the like, were prescribed, but to no purpose ; and strong cathartics made the disease grow worse. He was ordered to

be tapped, but his friends would not consent : wherefore, as his pain was now become intolerable, and there were no hopes of his life, anodynes were thought of, in order to procure him some ease, at least, in his last moments. Accordingly the following draught was given:

℞ Aq. Menth. Piper. ʒj. Cinnamom. ten.
 ʒfs. Cinnam. fort. ʒij. Tinct. The-
 baic. gt. xxxx. Lixiv. Tart. ʒfs. Syr.
 Althææ ʒj. M. f. haust. vesper. su-
 mendus.

This procured him most unexpected ease, and some sleep, to which he had been long a stranger ; and he made that night, at different times, a quart of water at least. This sudden change surprizingly raised his spirits. And as the patient found, that, while his ease from pain lasted, he had considerable discharges both by urine and stool ; but that he filled up again, when the effect of the anodyne was over ; the same draught was ordered to be repeated every eight hours, and in a little time

it was thought sufficient to give it but twice a day. But whereas his appetite was diminished by the constant use of this medicine, he took, once or twice a day, some spoonfuls of a chalybeate bitter infusion ; without neglecting the paregoric draught whenever the pain returned. And this course was attended to with such success, that, to complete the cure, he was ordered pills, composed of storax pill one part, Peruvian bark two parts, made up with Chio turpentine, to be taken twice a day ; whereby he perfectly recovered.

A total abstaining from all kinds of drink, has, indeed, had its abettors among the faculty ; and this method, in some ascetical cases, proved a successful means of cure, when the patients, while suffering an excessive thirst, could have resolution and patience to put such a self-denying method in practice. The way of assuaging their thirst, was by washing their mouth and throat with the juice of four apples or lemons, and now and then swallowing a very small quantity.

E e 4

But

But if the belly cannot be drained of its load of water, either by incisions made in the legs, as in the anasarca, or by any other helps above-mentioned, the operation of tapping is most adviseable; as it always considerably eases the pain occasioned by the tension of the abdomen; besides which, it has this great use, that it affords time and opportunity for administering proper medicines,

The

The Jaundice.

THIS disorder manifests itself by the following *symptoms*: a yellowness of the whole body, but most distinguishable in the whites of the eyes; caused by a suffusion of *bile*, and a rejection thereof to the surface; occasioning an itching of the skin: and that all objects seem to the patient, to be of a yellow colour. It is attended with a heaviness, and lassitude, and sometimes a bilious vomiting. The excrements are white, or cineritious; but the urine is of a saffron-colour, staining linen dipt therein, yellow.

The cause in general is owing to an impeded influx of the bile into the duodenum, and an absorption of it into the circulation, by which means the serous part of the blood becomes tinged therewith; and the urine, being loaded with the bilious salts, is of a yellow colour, and the *feces* appear white, from a defect of *bile* in the intestines.

The

The impediment to the natural secretion of the *bile*, is occasioned by a variety of circumstances : as an inflammation, and *scirrhus* of the *liver* ; *spasms* of the *biliary vessels* ; con-creted *bile*, and *gall-stones* ; and a *too viscid* state of the *bile* itself.

The cure must depend on the causes producing the disease : when it arises from inflammation, and is attended with fever, which is known by the fulness of the pulse, heat of the skin, drought, and tenderness of the right side, below the ribs ; bleeding, cooling physic, nitrous, and other saline medicines, are to be given, as in other inflammations.

For this purpose, purges with *tamarinds*, &c. should be given every other day ; or other cooling physic. The diluting drinks with nitre, and the saline mixture, may be given liberally till the fever is removed ; and emollient fomentations to the belly and stomach, applied warm : *opiates* also are necessary in cases of extreme pain.

When the fever is removed, after an emetic (if that be found necessary), pills of soap and rhubarb, to keep the body open, or else
the

the following aperient apozem, must be continued for some time, till the bile, becoming less viscid, may be separated in the glands of the liver, to pass more readily into the intestines.

℞ Rad. Rhei opt. Rub. Tinct. an. ʒijss. Sal. Absinth. ʒjss. leni ebullitione per horæ dimidiam continuata f. apozema, cui depurat. add. Syr. è 5. Radic. aper. ʒiij. M. Bibat ʒiij. ter in die.

When the skin and excrements have recovered their proper colour, the bitter infusion, with or without chalybeate, and vitriol drops, may be taken twice a day to mend the bile, and strengthen the constitution: for this purpose also *Bath*, and *Tunbridge waters*, may be very advantageous.

Scirrhus

Scirrhus.

A *Scirrhus* is occasioned by coagulated juice in the glands; and its seat, therefore, may be in any glandule, containing a liquor that is easily inspissated.

It may be produced by inflammation, stagnation, violent motion, and attrition.

If it be recent, and the patient of a good habit, it sometimes is resolvable by the steams of acids directed to the part, by means of a funnel; and the use of mercury, often repeated, in small quantities: with the same applied outwardly, mixed with cooling and emollient medicines.

But, if it does not submit to these means, considering the situation, constitution of the patient, and the tumor not adherent but moveable, it ought to be forthwith cut out with a knife.

But

But when it is of long standing, and, from its colour, unevenness, beginning to grow painful, and adherent to other vessels, it is known to be malignant, then all things ought to be avoided but anodynes, and such as quiet motion, that it may not turn into a cancer. The acrimony of the blood is to be corrected by the use both of internal and external remedies, and a strict regimen of diet: for which purpose, occasional bleeding, or cupping, and frequent gentle purges of the mercurial kind are to be administered; with milpepes, sperma ceti, &c. and the constant use of nepenthe, to keep off pain.

An *amalgama* of equal parts of *quicksilver* and *lead*, with alike quantities of *Unguent. Rosat. & Nutritum*, mixed, is to be spread upon linen-cloth, and worn upon the part continually; and, if any pain is perceived, a small quantity of opium may be added to every fresh application of this plaister.

The diet ought to consist of flesh broth, and other foods prepared of bread, oatmeal, barley, millet; with barley-water, whey, decoctions

coctions of china, and farsaparilla, for common drinks. And it is not doubted but that this method will be the secure means to take off the sense of pain, and often prevent a cancer.

Cancer.

Cancer.

A *CANCER* differs from a *scirrbus*, in that the latter is without pain ; but this is accounted the most terrible evil that befalls the body.

Cancers appear with such a diversity, that it seems impossible to give a definition which shall agree with all. Some have a round unequal, livid, painful hardness ; others are flat : and the variety seem chiefly owing to their rise, and the different parts they are seated in. Their causes are ascribed to an acid ferment, which first coagulates the juices in the glands, and afterwards corrodes and ulcerates the part.

This cruel disease begins without pain ; and appears, at first, like a chick pea ; increasing gradually, and at length growing painful.

Cancers have been found on most of the soft, spongy parts of the body ; as the gums, belly, neck of the matrix, ureters, lips, nose, cheeks,

cheeks, abdomen, thighs, and even the shoulders, and other parts also. But the breasts are most subject to this disease, being full of glands, with lymphatics, and blood vessels; whereby, on the smallest contusion, compression, or puncture, there happens an extravasation of those fluids, which, growing acrimonious, form the cancer.

This disease hath bid defiance to every method attempted for a radical, compleat cure. The narcotic vegetables, *nightshade*, and *hemlock*, have had their patrons; but the former seems now to be generally forgot, and the latter is considerably fallen from its first reputation, being now considered chiefly as a palliative remedy, in which light it is thought to be useful. It is, however, certain, that *Doctor Stork* experienced some extraordinary effects from the use of it, both in scirrhus and cancerous maladies; and that it performed cures on many of his patients: and it was thought by some, that, not having been found so efficacious in this country, it might probably be owing to the difference of climate. For *Mr. Miller* (vide *Botanic. Officin.*) says,
“ Whatever

“ Whatever noxious and poisonous qualities
 “ the *hemlock* of the antients was endued
 “ with, being that which the *Athenians* used,
 “ to put their criminals to death; ’tis certain
 “ that the *hemlock* which grows in our re-
 “ gions (though it seem to agree well enough
 “ to the description that *Dioscorides* gives of
 “ theirs) is of a less venomous and malig-
 “ nant nature, several persons having been
 “ known to have eaten some quantity of the
 “ root and stalk without any bad effect.”

The *German extract*, that at least which I
 have known experienced, was certainly very
 different in its effects, from that which was
 made here. For having had the genuine
hemlock, with some of the *extract*, and *plaster*,
 prepared in *Germany*; I had the satisfaction
 of knowing that they were all made use of,
 seemingly to good purpose, in *scirrhus*, and
cancerous disorders: two of which cases I
 must not forbear to mention, because they
 would both probably, if they had been con-
 ducted with the necessary cautions, and di-
 rections, that were given, have proved alike
 successful.

The first was a woman, under thirty years of age, having had a child, or children, who had a hard *scirrhus* tumor in each breast; one of which had been growing above two years, and was of a large size; from which she had suffered pain for some months: the other was of a shorter continuance, and about half the dimension of the former; of a more irregular form, with knots, but not painful. She had had some restless nights, and complained of great uneasiness in her teeth and gums, with a flux from the salival glands, sometimes like to choak her. I prescribed as follows:

℞ Mercur. dulc. sexies sublimat. gr. xv.
 Diagrid. præp. gr. viij. M. f. Pulvis,
 mane sumendus semel, vel bis in
 septimana, pro re natâ.

Diebus a Purgatione liberis, capiat Pulv.
 sequentem, mane et vesperi :

℞ Antimon. diaphoret. non ablut. gr. viij.
 Sperm. Ceti 3j. M. f. Pulvis, dividend.
 in duas doses.

Sumantur

*Sumantur Nepenth. gt. xx. Sacchar. instill.
hora somni; et repet. urgente dolore.*

She pursued this course of medicine for a fortnight; or three weeks; when I recommended the following, viz :

℞ Summitat. Cicutæ siccat. ℥ij. Aq. font.
bullient. ℔ij. infunde calidè et clausè
per noctem. Cum colaturâ tepidè
foveantur mammæ mane et vesperi per
dies aliquot.

Deinde applicetur singulis mammis Em-
plastr. è Cicutâ, renovando quotiescunq;
que res postulabit.

Infus. Cicutæ prædict. tepidè utatur ad os
eluendum sæpè.

Persistat etiam in usu Nepenth. per occa-
sionem.

By a continuance in this method she found
her pains relieved, and the tumefactions of
her breasts in about five months were totally
subsided.

Her diet was chiefly milk, and light foods, eggs, &c. by which she was perfectly restored to good health.

The other case was a cancer on the cheek of a young man, jagged, and of an irregular form, which had been increasing eight or nine weeks, grew more and more painful, and seemed to be of a very corroding nature. The patient was directed to take mercurial purges, and tinctura thebaica, between whiles, to quiet his pain; and after three or four repetitions, the following pills, and fomentation, were ordered; and a milk-diet, to be constantly, and strictly persisted in:

℞ Extract. Cicutæ Germanorum ʒij. F. pil.
no. xxiv. in Pulvere Cicutæ obvolven-
dæ. Capiat ij. mane et vespere quotidie,
augendo dosin in tempore.

Foveatur pars affecta, linteis duplicatis, In-
fusione Cicutæ, madefactis, tepidè, per-
sæpè.

The patient took four pills every day for
the

the first week'; then increased each dose, to three at a time, for another week ; and afterwards took four, twice a day, for a fortnight : by which means, and the use of the fatus, in which he thought he found a very great relief, the cancerous humour became much better conditioned, and the diseased part had so promising an appearance, that the surgeon who had the care of him, gave his opinion, that, provided he could prevail with the patient to follow his regimen, he had great reason to believe it would be soon well. But this, I was told, notwithstanding all the encouraging circumstances, he would not comply with ; and, disregarding both medicine, and regimen, that the malady soon became as bad as ever.

I am persuaded, that more experiments than one have shewn the *German extract* to be more efficacious in remedying the miseries of this disease, than that made from the hemlock of this country. One plain proof, however, where they had been both tried on a poor woman with an ulcerated *cancer*, is

truly convincing : for the *surgeon* who attended her, by the use of the former, found so much benefit, that he had no doubt, but, if she could have been supplied with more of the same, it would have finished the cure ; but, his whole stock being exhausted, he was under a necessity of substituting for it some other made in *London*, which had not the same effect.

In the *Memoirs of the Royal Academy of Sciences*, mention is made of the radical cure of three inveterate *cancers*, by the infusion of the leaves of *plumbago* in *olive oil*. These *cancers* had been deemed incurable, by reason of their adherence to bony parts. *Monsieur Sauvages de la Croix* observes, that these cancerous ulcers were anointed three times a day with the before-mentioned infusion of *plumbago* ; that the operation was repeated, till the black eschar, thereby formed, was sufficiently encrusted, for the patient to feel no sharp pains upon the application ; and that this happened in about a fortnight's time.

Dr.

Dr. *Cheyne* says, that a total *asf-milk* diet, about two quarts a day, without any other food or drink, will in time cure a *cancer*.

F f 4

Character.

Character of Νηπέρθης,

THE learned professor, the late Dr. *Pitcairn*, was of opinion, that there is wanting, in the art of healing, some such kind of medicine, as would immediately assuage the rarefaction of the blood, and diminish its motion, without any subsequent bad consequence.

The character Dr. *Boerhaave* ascribed to a preparation of opium, seems particularly adapted to answer this intention. He says, that, by the manner of preparing this medicine, the *subtile spirituous parts*, which contain the noxious quality of the *opium*, are so obtunded, and restrained, as to render it pure, and wholesome, and to be possessed of many virtues: that it not only takes away pain, and the cause thereof, but that it refreshes also, and defends all the principal parts of the body; and by diffusing itself to the innermost recesses of the viscera, in a wonderful manner,

manner, like a *charm*, it comforts *nature*, extinguishes *heat*, and induces *sleep* *.

These are the properties ascribed to an *opiate* divested of all its noxious qualities, by a very tedious process. And, indeed, it seems not improbable, but that, by the mediation of such a remedy, after *bleeding*, and the necessary *evacuants*, the *rarefaction* and *effervescence* of the *blood*, even when combined with *putrid* exhalations, would be speedily pacified and allayed.

I am induced to subscribe the more readily to this opinion, because I have known similar

* “ *Nepenthe* hoc est vere inculpabile, et multis virtutibus præditum: non solum dolorem, et doloris causam abscindit, verum etiam recreat, et tuetur omnes corporis partes præcipuas; et somnum inducendæ naturam confortat, ardoremque consumit.

“ Admonendum est tamen, medicamentum hoc, nisi transacto longo tempore à compositione, in usum non venire; longo enim tempore probe miscetur, et pravitatem amittit: compescuntur, et obtunduntur nimium subtiles illius spiritus partes, à quibus omnis noxa: ita ut intimiora viscerum penetralia mirum in modum, incantamenti instar, tutè et placidè invadit.” *Boerb. MS.*

instances

instances, in *malignant fevers*, where this very medicine has generally prevailed. I may add here, that I have given it a great many trials, and to some persons who could bear no other *opiate-medicine*, and never once perceived any ill effect arising from the use of it: on the contrary, I have reason to commend it as the most efficacious *cordial* that the *materia medica* has ever afforded. It has been proved to be a charm for the *gout*, and other painful diseases; *low-spiritedness*, from *depressing fevers*; *hysteric languor*; *difficult menstruation*; *after-pains*; *weariness*, &c.

It is directed to be given dropt upon sugar, and held in the mouth to dissolve gradually; whereby it more immediately imparts its operative powers, by the delicate nervous *fibrillæ* of the *palate*, to the *sensorium commune*; from whence they are distributed, by means of the *animal spirits*, throughout the whole *nervous system*: and thus the pacific virtues of this medicine, sometimes, and almost instantaneously, like a charm, by *emanation*, all at once, dissipate pain and agony; and restore ease and tranquillity

tranquillity to both body and mind. Of the truth of this, I myself have, more than once, been a witness; and truly astonished at the suddenness of the transition; which was so rapid, that the patients have declared themselves to have been relieved, even in less time than the sugar was supposed to be dissolved.

Mr. Cowper examined by a *microscope* a solution of *opium*, and found its *dissolved particles* in the shape of *fringed globules*; whence he concludes, that such *particles* circulating in the mass of *blood*, may easily be entangled in its *serum*, and thicken it in such a manner, as to retard its velocity, when over-violent, and render it calm and equal; whereby all painful sensations will be taken off. Hence we see the effect of *opiates*, which usually transport people, with a pleasing sensation of ease both of body and mind; and though they do not always sleep (which is owing to the presentation of pleasing objects to the mind, so strongly, that, like dreams, they over-engage the fancy, and so interrupt it); yet they enjoy so perfect an indolence, and
 quiet,

quiet, that no happiness in the world can surpass the charms of so agreeable an *ecstasy*.

The first observable effect of the mechanical impression of an opiate-medicine, according to Dr. *Alston*, is principally on the nerves to which it is applied ; next, such as more immediately communicate with them ; then those which serve for sensation, and voluntary motion ; and last of all, by consent, the whole *nervous system* ; the *sensorium commune*, and the *mind*.

Bodily pain may be understood to be Nature's invocation to the mind, expressing the distresses ; and, as it were, to demand assistance, by the application of means to procure ease : so that she always seeks the artificial cure, when she cannot perform her own ; and when the grievous torture is removed by the power of medicine, she pursues and executes her great designs with ease and tranquillity.

Contusions.

Contusions.

MANY internal diseases are the frequent consequences of *falls, blows*, and other external injuries, whereby the solids are crushed, and damaged; and a variety of effects follow, from the nature of those parts which suffer the injury: and all these are liable to happen without any external rupture, or manifest loss of substance. Hence proceed *obstructions, inflammation, and ulcers*, and even a *gangrene* in proportion to the violence of the cause. The injured parts, also, may be subject to many other mischiefs; as *varices, aneurisms, stagnation of the fluids, &c.*

Contusions on the *thorax* occasion *difficulty of breathing, spitting of blood, fainting fits, inflammation, and ulcers of the lungs*; and those of the glands, also, threaten *scirrhus tumors, and cancers*.

A large contusion of the *cranium* takes away the senses, and the limbs become either
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convulsed, or rigid; and *death* presently follows.

From contusions of the *abdomen*, we may expect *vomiting of blood*, *inflammations*, *suppurations*, and *gangrenes of the viscera*; but if any large vessels are burst by the blow, it is no wonder if the patient dies upon the spot, even though there be no mark of violence left upon the external part.

Such are the effects of violent contusions, on different parts of the body.

In the cure of these disorders, resolvents ought chiefly to be used, to prevent suppuration and gangrene, by rendering the extravasated humours fluid, and fitly disposed for absorption. This is to be done by large bleedings, clysters, and cooling purges; and applying to the part a penetrating, loosening, and resolving fomentation; together with internal resolvents, sweating, and diuretic medicines: and a thin diet, of such things that do not easily putrefy, is likewise requisite.

Experience has given the most convincing proofs, that much more may be done, by this method, than is almost credible; Nature be-
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ing ever disposed to lend a helping hand, in separating, attenuating, resolving, dispersing, and expelling all extravasated humours.

Solanum lignosum is recommended, as a singular remedy for internal contusions; by infusing four ounces of the green twigs in a quart of *Moselle wine*. It dissolves clots of extravasated blood, and drives it again into the circulating mass; whence, both by *sweat* and *urine*, and sometimes, when taken very liberally, by purging also, it throws it out of the body. Indeed, it operates so powerfully and specifically by *urine*, that it has been made black as ink.

A young woman, in drawing up a bucket of water, by that time she had got it to the top of the well, was so overcome by the labour and fatigue, that her strength could support it no longer; and letting go the winch, it retorted so sudden, and violent a blow, upon her breast, that she fell down, and for some short space of time was supposed to be dead. A surgeon was fetched, who bled her in the arm plentifully, till she grew sick, and vomited up the contents of her stomach, with
a large

a large quantity of blood: she was put into bed, and a clyster was prepared of the common decoction, with a large quantity of linseed oil, and a spoonful of salt, which cleansed her bowels effectually, but lowered her so much, that, to prevent fainting, a flannel roller was applied round her belly; and hot stupes, wrung out of a fomentation, were kept, constantly repeated, to the injured part. She was ordered to take two or three spoonfuls of the following mixture once in three hours:

℞ Sperm. Ceti (Vitel. Ovi solut.) ʒij. Nitr.
3fs. Syr. Balsam. ʒj. Aquar. Hord.
ʒvj. Theriacal. ʒij. Sal. volat. Corn.
Cerv. ʒij. M.

A cup of water, in which some mace had been boiled, with a small spoonful of wine added, was also given her warm between whiles.

This helped to keep off sick fits; and she lay in a free, open perspiration, by these means, throughout the night, and till the afternoon of the day following; when she grew
restless

restless and hot, with a quick pulse, short cough, and uneasy respiration. A *Physician* was called, who ordered bleeding to be repeated, and Pil. Ruffi ʒj. è Styrac. gr. v. to be taken at night, and repeated every, or each other night, as there was occasion.

The following infusion was prescribed also at the same time :

R Sarment. Solan. lign. concis. ʒiv. Theriac. Venet. ʒss. Vin. alb. mont. Aq. font. an. ℥j. Infunde calidè et clausè per noctem, et in colaturâ misce Aq. Theriac. Syr. Heder. terr. an. ʒij. M.

Sumat cochl. vj. ter in die, repetendo donec intentioni satisfiat.

The specific virtue of this medicine, as a dissolvent of coagulated blood, was truly manifested by the blackness of the excretions, both by stool and urine, for several days.

After this, the patient was ordered to pursue a course of ass's milk, night and morning, with an infusion of the bark twice a day, for a month. By which means she was perfectly restored to health and strength.

I have experienced effects similar, from the *solanum lignosum*, when differently prescribed ; but, to serve the intention singly, have found it to be more grateful to the patient, when infused in Moselle, or Rhenish wine, than in any other way.

Worms.

Worms.

HHEAD-ACH, vomiting, heart-burn, sighing, swooning, feeble pulse, sleepiness, canine hunger, and innumerable other symptoms, are derived from worms in the human body; occasioned by their sucking, moving, vellicating, gnawing, consuming the chyle, irritating the nerves, wounding the solids, &c.

As to the *vermis latus*, besides the other common symptoms, those affected with this, have one peculiar to them; which is, that, with their stools, they frequently discharge several little bodies, like gourd-seeds.

There are a great variety of medicines given for the destroying of worms; but, as they are of very different kinds, there is great caution required in selecting such as are most proper for each peculiar case.

Acids, in general, are esteemed; and lemon-juice, vinegar, and other vegetable acids,

such as pomegranate, and currant-juice, &c. are given; and sometimes the mineral ones, as the spirit of vitriol, sulphur, &c. All these are properly given, when there is a preternatural heat, and feverish disposition; for they not only allay the heat, but resist putrefaction.

Bitters in general are also reckoned, among the medicines, good against worms; of this kind are wormwood, centaury, rue, and the like; and to these are to be added, the purging bitters, such as rhubarb, aloes, and colocynth. These medicines do not act merely as bitters; for it is well known, that many insects will endure the bitterest substances unhurt, and worms will breed in the gall-bladder: but they correct, and alter the crude, and viscid matter, in the intestines, by which these animals are nourished; and, by stimulating the fibres of the intestines, they often discharge the noxious matter, and worms themselves with it. They also correct the inactivity of the bile, which in children, and persons of moist habits, is the general cause of the breeding and living of these insects.

Oily

Oily medicines of all kinds, are by some greatly extolled in cases of worms: and there seems this reason for it, that all insects are destroyed by being put into oil; and that flies, and many other small animals, which, after seeming dead, on being immersed in other liquors, would come to life again, on being exposed to the solar rays, never revived again after being drowned in oil. To this it may be added, that very good effects always follow the giving oils, in cases of the greatest torment from worms. It is not to be supposed, however, that the oil acts by covering and drowning the worms, since to this purpose there must be as much swallowed as would fill the whole intestinal canal; but this cannot be. Oils therefore plainly act, in this case, on the symptoms, not on the cause; and relax the spasmodically contracted coats of the intestines, and, as it were, defend and line them with a sort of mucilage, in such a manner, that the more acrid purging medicines, necessary to the utter destruction of the animals themselves, may be given with more

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safety.

safety. Thus it is a very good method, to give a child over night half an ounce, or more, of oil of sweet almonds, and, in the morning following, a brisk purge of the *resin of jalap, mercurius dulcis*, or any thing else of this kind.

Saline substances, in general, are also greatly celebrated for the cure of worms ; and they, indeed, are capable of acting in a double capacity, by destroying the tender structure of many of them, and vellicating the intestines so as to promote the discharging them.

But if any disorder admits of specific remedies, we might expect that this malady would : for these purposes, many extol some of the gums ; as *asa fætida, galbanum*, and *myrrh* ; and the leaves of some plants, as *wormwood*, and *tansey*. Onions, and *garlick*, are also greatly commended ; and *bitter almonds*, and *wormseed*, have long been famous. All these are found peculiarly destructive of worms ; and no method of cure succeeds well, in which one or other of these has not a share.

Among

Among the *minerals*, we find also one remedy, greater than all these, that is *quick-silver*: this has been given in various forms, and found more or less successful in all.

Water, in which quicksilver had been boiled, was first given by *Helmont*, and that with great success; after this, *Meiboom* infused crude mercury in *Rhenish wine*, and found it more effectual than the former. But the most successful method seems the giving proper doses of *mercurius dulcis*, with either *resin of jalap*, or *scammony*.

Sir Theodore Mayerne assures us, in the *Philosophical Transactions*, No. 211. that the famous remedy given by *Pontæus*, for the worms in children, is fifteen grains of *mercurius dulcis*, with five grains of *scammony*, and two or three times as much sugar, made up in lozenges. He adds, that this dose of *scammony*, which in *France* purges grown people, is ineffectual in *England*, to persons above fifteen years old, and ought to be augmented.

Acrid purgatives, or hot remedies, are never to be given where there is a febrile heat: and

when there is cause to suspect that the duodenum is full of an acrid bile, then mercurials are to be avoided, as are all the drastic purges; for these medicines, in these circumstances, often bring on an inflammation of the bowels.

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The Doctrine of the Pulse.

HIPPOCRATES was the first observer of that reciprocal motion of the *heart* and *arteries*, called the *pulse*; whereby the blood, thrown out of the left *ventricle* of the heart, is so impelled into the *arteries*, to be by them distributed throughout the body, as to be perceivable by the finger.

Pulse is thus accounted for : When the left ventricle of the heart contracts, and throws its blood into the *aorta*, the blood in the *artery* is not only thrust forward towards the *extremities*, but the channel of the *artery* is likewise dilated; because fluids, when they are pressed, press again to all sides, and their pressure is always perpendicular to the sides of the containing vessels: but the coats of the *artery*, by any small *impetus*, may be distended; therefore, upon the contraction or *systole* of the heart, the blood from the left ventricle will

will not only press the blood in the *artery* forwards, but both together will distend the sides of the *artery*. When the impetus of the blood against the sides of the *artery* ceases; that is, when the left ventricle ceases to contract; then the *spiral fibres* of the *artery*, by their natural *elasticity*, return again to their former state, and contract the *channel* of the *artery*, till it is again dilated by the *diastole* of the heart. This *diastole* of the *artery* is called the pulse; and the time the spiral fibres are returning to their natural state, is the distance between two *pulses*. This pulse is in all the *arteries* of the body at the same time; for when the *blood* is thrust out of the *heart* into the *artery*, the *artery* being full, the blood must move in all the *arteries* at the same time: and because the *arteries* are *conical*, and the blood moves from the *basis* of the *cone* to the *apex*, therefore the blood must strike against the sides of the vessels, and consequently every point of the *artery* must be dilated at the same time that the blood is thrown out of the left *ventricle* of the

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the heart ; and as soon as the *elasticity* of the *spiral fibres* can overcome the *impetus* of the blood, the *arteries* are again contracted. Thus two causes operating *alternately*, the *heart* and *fibres* of the *arteries*, keep the blood in a continual motion.

The observation of the pulse is of the utmost importance, as it discovers the state of the heart, the first mover in the animal frame ; and as it shews the *nature*, *quality*, and *motion* of the *blood*, that universal humour whereon all the rest depend ; and as it indicates the condition of the artery, the primary vessel of the whole body.

A strong pulse, then, denotes,

1. A great muscular force of the *heart* ; and, consequently, the strength of the contracting cause : that is,
2. A brisk and copious influx of the *nervous juice* into the *villi* of the *heart*.
3. Plenty of blood.
4. A laudable secretion, and circulation of humours.

A weak pulse denotes the contrary.

A hard

A *hard pulse* signifies,

1. That the *membrane* of the *artery* is drier than ordinary ; and, therefore,

2. Obstructions in the minute vesicles, whereof the membranes of the artery are woven.

3. That the *arteries* are full ; but

4. That their *capillary extremities* are obstructed with an *inflammatory viscosity*.

5. That the *blood* is very dense, and compact : hence,

6. That the circulations, secretions, and excretions, are depraved.

A *soft pulse* denotes the contrary to all these ; yet is very fallacious in an acute *peripneumonia*.

A *slow pulse* signifies that the contractions of the *heart* are slow ; and, therefore,

1. A slowness of the influxes of the nervous juice, from the *brain*, into the *villi* of the heart.

2. That the *blood* has circulated a great number of times.

3. That all the *humours* circulate easily through

through their vessels. Indeed, if the *pulse* be thus from weakness, it is an ill sign.

A quick pulse denotes the contrary of all these; as *acrimonies*, *spirits agitated*, *fevers*, and *phrenzy*.

An equable pulse shews a constant tenor of the vital functions; an uneven one, the contrary.

An intermitting pulse shews life in a slippery situation. It is either owing to a fault in the nervous juice, which flows unequally into the heart; or in the vessel which transmits the *blood* and *humours*; or to the humours themselves. The causes of this disorder are various; as *convulsions*, *polypuses*, *cacochymias*, *inflammations*, want of *blood*, *bony*, or *cartilaginous arteries*, &c.

A strong, equable, and, at the same time, slow *pulse*, is, of all others, the best. A strong and great, or strong and slow *pulse*, together, are good. A weak, small, unequal, intermitting, quick *pulse*, is, of all others, the worst.

Yet, in all these things, regard must be had to the particular *artery*, the *age*, *sex*,
temperament,

462 'THE DOCTRINE OF THE PULSE.

*temperament, affections of the mind, the
six non-naturals, habit of body, season, country,
. &c. all which have an influence on the
pulse.*

of

Of Fevers in general.

THE causes of *fevers* are innumerable ; and the disease often arises in the soundest habits, without any seeming *apparatus*, merely from the change of *air*, *food*, or other alteration in the *non-naturals*.

Pathognomonick symptoms are, a sense of *chillness*, *quick pulse*, and *preternatural heat*. These are attended with an *immoderate thirst*, *loathing of food*, *wakefulness*, *great loss of strength*, *inaptitude to motion*, *a sensation of pain*, and an *uneasy respiration*.

Glandular secretions, in all *fevers*, are either obstructed, or diminished : that is, a great part of the *lymph*, or *serum* of the *blood*, which ought to be continually drained off by the *glands*, is so retained in, and closely united to the mass, that it circulates together with it, in the *veins* and *arteries*.

Fevers very often are cured by *Nature*
alone,

alone, and go off happily, only, by the *patient's abstinence, a quiet state, and keeping up the natural evacuations*. In this manner, great numbers recover, without the help of *medicines*. A number, almost as great, is destroyed by *medicines*; which, when administered by persons who have not sufficient judgment, interrupt *Nature*, and prevent the *necessary excretions*.

Fevers go off, according to the language of *physicians*, either by a *crisis*, or *lysis*: In the first case, by means of any *critical evacuations*, which may happen in sufficient quantity, to bring with them a sort of instantaneous cure; whereby the patient becomes well, and easy, though immediately before he was in the utmost anxiety and uneasiness. In the other, they only wear off gradually, growing, slowly, *less and less violent*.

Sweating is the cure of all *fevers*, but it never happens during the burning heat; which is to be assuaged by *clysters*, and a plentiful dilution. And it is to be observed, that, when the fever goes off happily, and easily, without

without any medicines, the patient always enjoys a better state of health after, than he had before.

The *physician* in all *fevers* is to endeavour to make himself the *servant* and *assistant* of *Nature*; by endeavouring, in the beginning, and increase of the disease, to prepare, dispose, and search the *noxious matter*; and in the state and declension, to eliminate, and evacuate it, so prepared, by the proper passages. The whole business of *art*, therefore, is to assist *Nature* in these two efforts; of secretion, and excretion of the matter.

The remedies which we are to give, to assist the secretion, and preparation of the *morbid matter*, are the moistening things in general; such as a sufficient quantity of warm, and weak fluids: as the common *barley-water*, and teas made of *sage*, *mint*, *baum*, &c. and the milder *alexipharmic roots*; with these, also, are to be given the gentle *resolvents*, such as are able to break the thick, and tough consistence of the humours: of this kind are the temperate *alexipharmic roots*, especially, as they are also endowed

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with

with a *diuretic* virtue; such are the roots of *enula campana*, *anagallis*, *petasites*, &c. *Scordium* is also, by some, greatly recommended in this intention. These may be conveniently given in *decoctions*, or *infusions*, with powders, composed of the *absterfive* and *digestive salts*, such as *tartarum vitriolatum*, &c; mixed with such things as have a power of obtunding, and increassating, the acrid, and thin *sulphurous saline humours*: such are the absorbent powders of *oyster-shells*, *crab's claws*, &c. These should be first sated with *lemon-juice*; and then, mixed with a little *nitre*, and the before-mentioned salts, they make an excellent *medicine*. These may be given every three, four, or six hours, as the urgency of *symptoms* requires; and a draught of the above-mentioned decoction given after them. *Emulsions* of sweet almonds, and the cooling feeds, are also very proper between whiles.

The medicines by which the *physician* is to assist *Nature* in her following business of excretion, are the gentle *diaphoretics*, among which the *calx of antimony*, when truly prepared, holds a very high place. Those alexipharmics,

alexipharmics, also, which have a *diuretic* virtue, such as *mixtura simplex*, when faithfully prepared, and lightly *camphorated*, are very proper; and the bowels are in the mean time to be kept open by *emollient clysters*. These things are proper in all *fevers*; but in some, also, emetics, gently laxative medicines, and bleeding, are extremely requisite: those, however, are not always to be admitted at random, in all kinds.

All violent *medicines* are to be dreaded in *fevers*: for *Nature* usually attempts to do her office placidly, and quietly, in these cases; and such medicines as disturb her motions, often bring on mischiefs, which she would have avoided.

In all *fevers*, the drinking plentifully of warm weak liquors is attended with many good consequences; the *patient* is always refreshed by it, the *febrile heat* is mitigated, and *rest* is promoted, and the proper and necessary *sweats* forwarded. The *symptoms* of *fevers* are never to be so much regarded as to prevent the due attention to the principal point; nor is the *physician* to be alarmed at

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them.

them. Want of appetite, and thirst, with long watchings, are not to be attacked with particular medicines, but looked upon as mere *symptoms*, which will hereafter go off of themselves; and inquietude of *mind* should have no other medicine, than serious advice of the harm it will do. Sudden cooling of the body, in all *fevers*, is a very dangerous thing. The *patient* is to be advised to swallow his liquors *gently*, not *hastily*.

Nitre is an admirable medicine in all *fevers* in general; it agrees with all temperaments, but principally with the hot: when taken in the solution with warm and weak liquors, it always gently opens the bowels; and when given in powders, it more than all other things obtunds the *acrimony* of the humours.

Dr. *Sydenham* recommends an *emetic* in the beginning of a *fever*; or, if it have been omitted, in any other stage thereof; especially where there is a propensity to *vomiting*: for want of this a *diarrhœa* frequently succeeds, which is often exceedingly dangerous. After this he gives a *paregoric*; and the following days, if there be no indication

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to repeat the *venæsection*, nor any *diarrhœa*, he prescribes every other day an *enema*, till the twelfth day: when matters usually come to a *crisis*, he has recourse to hotter medicines, in order to promote and accelerate it. He adds, that if the disease proceed well, and the fermentation be laudable, there is no occasion for any physic at all. About the fifteenth day, if the *urine* be found to separate, and give a sediment, and the *symptoms* be abated, a *cathartic* is usually ordered, lest the sediment, returning into the blood again, occasion a relapse. Nothing cools the patient, and abates the *fever*, so much as a cathartic after *venæsection*.

The more acute the *fever*, the thinner, according to *Etmuller*, must be the diet. It is no matter, if the *patient* should fast for several days running; for never did feverish persons die of hunger: eating always exasperates the disease. *Emetics* he allows the principal place, in the cure of all *fevers*; but, as a patron of the hot *regimen*, he assigns *sudorifics* the second. *Spirit of sal ammoniac*, or its *sal volatile*, he observes, is an universal

febrifuge, and rarely fails. All *sugared* things are hurtful.

So long as the *urine* remains crude, that is, does not give a sediment, the *patient's* case is dubious: but when once the *coction* commences, and the *urine* separates, the great danger is generally over.

It ought to be observed as a matter of importance, that a constant confinement of the *patient* to his bed, and especially in hot weather, is, in most *fevers*, hurtful: and, in the general, it is highly necessary that he should sit up, now and then, a little while at a time, as it cools the body, and refreshes the mind; prevents a *delirium*, and facilitates the excretions: but it is never to be suffered when he is in a *breathing sweat*, tending to a *critical termination*. Mean time, while the *patient* is out of bed, the sheets should be constantly changed every day, after being purified by fresh air from the *morbific effluvia*, which would, otherwise, increase the *malignity*.

A free circulation of fresh, cool *air*, let into the room, occasionally, from the *window*, or *door*, is certainly of much benefit; and
warm

warm *vinegar*, sprinkled daily on the floor, as a corrector of foul *air*, is a useful expedient.

The *patient's* food should be no other nourishment than *panada*, *barley*, *oatmeal*, or *rice gruel*; unless, now and then, if faint, or low, a few spoonfuls of *Boerhaave's* decoction of bread, made by boiling half a pound of bread for an hour, in three pints of water, in an earthen vessel close stopt: then strain it through a sieve, and add to a pint of the decoction half an ounce of *lemon-juice*, and four ounces of *Rhenish wine*, with *sugar* enough to make it palatable.

Fevers are essential, and symptomatical. The first hath its principle in the *blood*: the last does not properly subsist of itself, but derives its origin from an inflammation, or disorder of some particular part.

It is found nevertheless, by experience, that some persons, from sound and perfect health, where there has been neither a *plethora*, nor any *cacochymical* disposition to cause it, have fallen into a fever; because, perhaps, some very extraordinary alteration

in the air, or some great change in their way of living, or some considerable error in the *non-naturals*, have happened, till their blood acquired a new state and condition, fit to accommodate itself to such changes and alterations.

The general cure of fevers, according to *Boerhaave*, is summarily comprehended in consulting the strength of *Nature*; in correcting and discharging the acrimony from the blood; in dissolving gross humours, and expelling them; and in mitigating the *symptoms*.

If the symptoms run high, and Nature grows exorbitant, we must enjoin abstinence, a slender diet, drinking water, bleeding, cooling *clysters*, &c. If Nature seems to be sluggish, she is to be excited by *cordials*, *aromatics*, *volatiles*, &c.

The cause being removed, the symptoms cease; but if they can be borne without danger of life, they scarce require any particular cure; nor many times are they, without caution, to be interrupted: but if they are unseasonable, and too violent, they are to be mitigated

mitigated with proper remedies; due regard being had to the cause, and state of the distemper.

If there be any obstruction in the bowels, we are to take care, by proper evacuations, to remove the load, and by that means take away some of the fuel of the distemper: if the blood be too furiously agitated, we are to quell such an impetuosity: if it be embarrassed with gross and coagulated humours, we are to endeavour to dissolve it, and render it more fluid: for in the due observation of these precepts, consists in a manner the whole cure of fevers, where the *viscera* are sound, and the peccant humours are lodged in the blood, or *primæ viæ*. And when Nature tends to produce a *crisis*, or she has already began it, we are to refrain from the use of medicines.

They are grossly mistaken, who in acute, and inflammatory distempers, make use of abundance of medicines: for the orderly motion of Nature being disturbed, and distracted thereby, the fever is not lessened, and the crisis is postponed; and the patient, exposed
to

to a dubious event, either dies, or falls into a chronical distemper.

The skilful physician, who goes on soft and fair, will find that a clear and distinct method of practice is for the most part crowned with success.

A Pro-

A Prophylactic Cure of Fevers.

ACCORDING to *Nature's* doctrine, diseases are more easily prevented, than cured: for it is much easier, and safer, to remove the cause of a distemper, in its simple state, than after it is become more complicated, and hazardous.

The *symptoms* present in all *fevers*, are a shivering, quick pulse, and heat.

During the *cold-fit*, the *pulse* is *quick, small*, and often *intermitting*: the extremities are *pale, cold, stiff, trembling*, and *void of feeling*.

The cause of *shivering* arises, either from bloody humours stagnating at the ends of the *capillary vessels*, or a too quick, reciprocal influx, of the *nervous juice*, into the *muscles*, and *ventricles of the heart*.

The nearest cause of a *fever*, is a quicker, than the natural contraction of the *heart*.

This first symptom of a *fever* is quickly remedied, by the immediate use of a warm
bath,

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bath, with moderate, and continued friction; diluting plentifully with draughts of *warm water*, with *nitre*, *honey*, and a proper proportion of *Rhenish Wine*; taking between the draughts some drops of *dulcified spirit of nitre on sugar*, held in the mouth to dissolve gradually: mitigating the symptoms, also, if necessary, by *bleeding*, *clysters*, &c. by which means, many have been cured of the certain forerunner of acute and dangerous *fevers*.

Essay

Essay on Foods.

THE first foods of our great forefathers, were water, and the spontaneous productions of the earth ; with which also many whole nations sustain themselves to this day.

Flesh-meat not being a proper food without dressing, is alleged as an argument, that man was not intended for a *carnivorous*, or *flesh-eating animal*.

The usual operations, are roasting, boiling, and stewing. In roasting it is observed, meat will bear a much greater, and stronger heat, than either in boiling, or stewing ; and in boiling, greater, and longer, than in stewing.

The reason is, that roasting, being performed in the open air, as the parts begin externally to warm, they extend and dilate, and so gradually let out part of the rarefied included air ; by which means the internal succussions, on which the dissolution depends, are much weakened and abated. Boiling being
per-

performed in water, the pressure is greater, and consequently the succussions to lift up the weight, are proportionably strong; by which means the coction is hastened: and even in this way, there are great differences; for the greater the weight of water, the sooner is the business done.

In stewing, though the heat be infinitely short of what is employed in the other ways, the operation is much more quick, because performed in a close vessel, and full; by which means the succussions are more often repeated, and more strongly reverberated. Hence the force of *Papin's Digestor*; and hence an illustration of the operation of digestion.

Boiling, Dr. *Cheyne* observes, draws more of the rank, strong juices, from meat, and leaves it less nutritive, more diluted, lighter, and easier of digestion: roasting, on the other hand, leaves it fuller of the strong nutritive juices, harder to digest, and needing more dilution.

Strong, grown, and adult animal food,
there-

therefore, should be boiled ; and the younger and tenderer, roasted.

The drinks, in different countries, are different. Those ordinarily used amongst us, are, water, malt-liquors, and wine.

Water, no doubt, was the primitive, original drink of man, as it is the only simple fluid fitting for diluting, moistening, and cooling ; the only ends of drink appointed by Nature : and happy had it been for all the race of *mankind*, had other mixed, and artificial liquors, never been invented. Water alone is sufficient, and effectual, for all the purposes of human wants in drink. Strong liquors were never designed for common use. They were formerly kept here, in *England*, as other *medicines* are, in *apothecaries* shops, and prescribed by physicians to refresh the weary, strengthen the weak, and raise the low-spirited. The effect of the ordinary use of *wine*, and *spirituous liquors*, as natural causes will always produce their effects, is to inflame the blood into *gout*, *stone*, and *rheumatism*, *fevers*, *pleurishes*, &c. ; to draw up the *juices*, and scorch and shrivel the *solids*. Those,
whose

whose appetite and digestion is good, and entire, never want *strong liquors* to supply them with *spirits*: such *spirits* are too *volatile* and fugitive, for any solid, or useful purposes of life. Two ounces of flesh-meat, well digested, beget a greater stock of more durable, and useful spirits, than ten times as much *strong liquors*.

All strong liquors are as hard to digest, and require as much labour of the concoctive powers, as strong food itself: water is the only universal dissolvent, or *menstruum*, and the most certain diluter of all bodies proper for food. There are a great many *spirituous liquors*, which not only will not dissolve, but which will harden, and make more indigestible certain parts, especially the *salts* of bodies, wherein their active qualities, that is, those which can do most harm to human constitutions, consist. And we have known persons of tender constitutions, who could neither eat, nor digest, upon drinking *wine*; who, by drinking at meals, common water warmed, have recovered their appetite and digestion, and have thriven and grown plump.

It

It is true, *strong liquors*, by their heat and stimulation on the organs of concoction, by increasing the velocity of the motion of the fluids, and thereby quickening the other animal functions, will carry off the load that lies upon the stomach, with more present chearfulness: but then, beside the future damages of such a quantity of *wine* to the stomach, and the fluids, by its heat and inflammation, the food is hurried into the habit unconcocted, and lays a foundation for a *fever*, a fit of the *colic*, or some chronical disease.

The first drinks of *mankind* were certainly water, and milk: but the love of luxury and debauchery, soon introduced the art of preparing intoxicating and inebriating drinks out of *vegetables*. The vine gave the first of these liquors; after this, *wheat*, *barley*, *millet*, *oats*, *rice*, *apples*, *pears*, and *pomegranates*; and after these, the juices drained from the *pine*, *sycamore*, *birch*, and *maple*, were brought to this use: in latter times, *roots*, *berries*, and the *pith* of the *sugar-cane*, have been employed for the same purposes: *honey*, also, is

at present in some repute ; but, before the use of other things here mentioned, the vinous liquor, made of *honey* and *water*, was in the highest estimation. The *bees* were natural purveyors, and their stores were one of the first delicacies, probably, of the human race. It was very natural to attempt the meliorating so raw a drink as water, by an addition of this sweet substance ; and such a mixture needed only time for fermentation to become vinous : accident soon lead to this discovery. *Mead*, therefore, may naturally be supposed to have been one of the first strong liquors in use in the world ; and among the old writers, among the *Greeks*, we find it named as a thing well known. *Homer*, *Hesiod*, and *Aristophanes*, all give plain proofs of their having been acquainted with it ; and *Orpheus* represents Night counselling *Jupiter* to make *Saturn* drunk with *mead*, and then to dethrone, and castrate him.

The people who have studied the human frame, all agree, that, among the strong drinks, *wine* is the most pernicious ; and that good *water*, *milk*, and *cyder*, are greatly preferable

ferable to it; none of these bringing on the variety of disorders, to which immoderate *wine-drinkers* are subject, such as decay of *sight*, trembling of the *limbs*, &c.

The qualities of *food*, as to easiness, or difficulty of *digestion*, Dr. Cheyne thinks, may be determined, in all cases, from these three principles :

1. That those substances which consist of the grossest parts, are hardest of *digestion*; by reason their constituent parts touch in the most points, or have the greatest quantity of contact, upon which their cohesion depends.

2. That those substances, whose parts are brought together with greater force, cohere proportionably closer, and are the more difficultly separated.

3. That salts are very hard to be digested, because united by plane surfaces, under which they are always comprehended; hence, in the large stages of the circulation, where it is slower, they readily shoot into larger clusters, and so are hard to be driven out of the habit.

From these principles this *author* infers, that such *vegetables* and *animals* as come soonest to their growth, are easier of digestion, than those long in attaining to maturity: the smallest of their kind, sooner than the larger: those of a dry, fleshy, and fibrous substance, sooner than the oily, fat, and glutinous: those of a white colour, sooner than those of a redder: those of a soft, mild, and sweet, sooner than those of a rich, poignant, aromatic taste: land *animals*, than sea *animals*: *animals* that live on light vegetable food, than those on hard and heavy food: plain-dressed food, than what is pickled, salted, baked, smoked, or otherwise high-seasoned: and boiled meat sooner than roast.



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